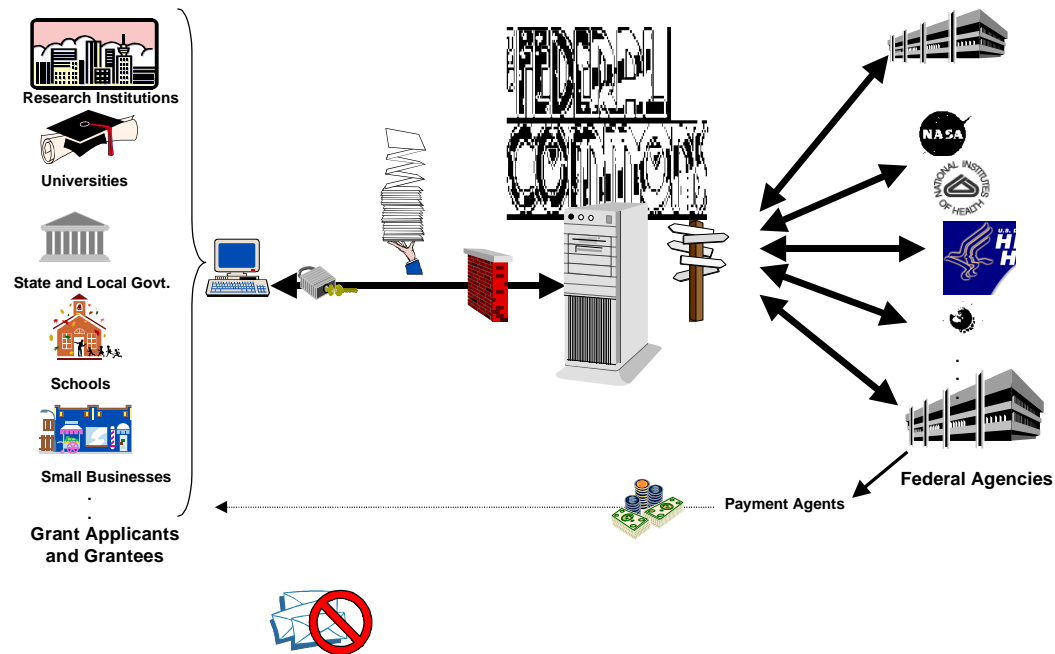


# Federal Grants Pilot Architecture

**September 28, 2001**



**The MITRE Corporation**

MITRE

**Software Engineering Center  
McLean, VA**

**Sponsored by the  
Federal CIO Council**



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## **Federal Grants Pilot Architecture**

February 27, 2001  
Revised September 28, 2001

### **Introduction**

The Federal Grants Pilot Architecture was developed as part of a pilot effort to test the effectiveness of using DoD's *C4ISR Architecture Framework* products to document Federal Segment architectures. The pilot focused on the Federal Commons within the proposed Grants Segment; the intent is to lay groundwork to develop an architecture for the full Grants Federal Segment if and when such a segment is approved.

This architecture description contains the work products, accompanying explanatory text, and diagram creation guidance for the DoD work products developed for the Federal Grants Pilot Architecture. Information for the products was collected from written documents and meetings with Logistics Management Institute (LMI).

For each type of product, guidance on the purpose of the product and considerations when creating it are presented first. Following the guidance, text explanations provide additional detail on the content of the diagram. The diagram itself is shown on the facing page.

The following products are presented in this document:

1. Overview and Summary Information
2. High-Level Operational Concept Description
3. Activity Model
4. Operational Node Connectivity Description
5. Operational Information Exchange Matrix
6. System Interface Description
7. System Evolution Description
8. Technical Architecture Profile
9. Integrated Dictionary



## 1.0 Overview and Summary Information

### Federal Grants Pilot Architecture

September 28, 2001

#### Identification

Name: Federal Grants Pilot Architecture

Sponsor: Federal CIO Council

Model Development: The MITRE Corporation

Subject Matter Experts: Logistics Management Institute (LMI)

Modeling Tool Expertise: PTech

Development Dates: Oct 1, 2000 to February 27, 2001; modified April 2001 and September 28, 2001

#### Purpose of Pilot Architecture Development and Analysis

The Federal Architecture Pilot Project consists of the Federal Grants Pilot Architecture and the Federal International Trade Pilot Architecture. Both pilots are intended to support a decision concerning incorporation of the *C4ISR Architecture Framework*<sup>1</sup> products into the Federal Enterprise Architecture Framework (FEAF) and the decision whether or not to designate Grants and/or International Trade as Federal Segments. These pilots support the CIO Council Strategic Plan FY 2000

- Objective 3.2: develop the Federal Architecture Segments, and
- Objective 3.3: provide architecture tools to support segments.

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<sup>1</sup> The Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Architecture Framework is being updated and renamed the DoD Architecture Framework Version 1.0. Publication is expected in Fall 2001. The term DoD rather than C4ISR is used through the rest of this document.

For the Grants Pilot, the products developed address the Planner's and Owner's views of the Federal Commons, a project within the proposed Grants Segment. Among the questions to be explored are:

1. How does the information in the eight mandatory DoD products relate to the information required by the FEAF?
2. Can the DoD architecture products be used to document FEAF architectures, and if so, what modifications and guidance are needed to improve their usefulness with FEAF architectures?
3. Are there any limitations imposed because the DoD architecture product descriptions were originally developed for the DoD environment?
4. Is there a distinct set of participants for each of the proposed segments?
5. What information sharing can take place within each segment?
6. What common processes might exist within each segment?

The analysis of the pilot architectures will be manual; no automated analysis is planned.

## **Scope of the Architecture**

The Grants Pilot examines the Planner's and Owner's view of the Federal Commons. The views are documented with all mandatory DoD products and a supporting System Evolution Description product. The product set includes the following:

- Overview and Summary Information (this product)
- High-Level Operational Concept Description
- Activity Model
- Operational Node Connectivity Description
- Operational Information Exchange Matrix
- System Interface Description
- System Evolution Description (supporting product)
- Technical Architecture Profile
- Integrated Dictionary



## **Context**

### **Mission**

The purpose of the Federal Commons is to provide a common face of government for electronic grant administration, a portal that will support over 600 grant programs awarding 300 billion dollars from over 25 agencies. Consistent with The Federal Financial Assistance Management Improvement Act of 1999 (P.L. 106-107), the Federal Commons is to be the common system with electronic processes where any non-federal entity can apply for and report on the use of federal grants from multiple federal programs administered by different federal agencies using common sets of application and reporting forms. The intent is to streamline and simplify grant application, administration, and reporting procedures. The Federal Commons is also aimed at reducing the differences in grant administration across agencies and decreasing duplication of effort. Applicants and grantees gain a choice of electronic options to submit information to federal agencies using standard forms, procedures, and a single contact point. Federal agencies gain a solution to deal with a diverse grantee community and can share credential information and technology developed at other agencies. Both the government and the public grants community gain many efficiencies of electronic commerce and Electronic Data Interchange (EDI) including increased speed of communication, elimination of data entry, reduced errors, and standardization of data. Collectively, these improvements will promote a better return on research dollar investment.

Federal Commons development is being overseen by the Interagency Electronic Grants Committee (IAEGC). The IAEGC is associated with the CFO Council through its Grants Management Committee and with the CIO Council through its Interoperability Committee.

### **Today's Environmental Situation**

Today, both the grantee community and the federal grant making agencies have diverse environments. Some grantee organizations have extensive internal grant application systems and databases with trained support staff and administrators. Other organizations or single individual applicants have minimal in-house technology. Federal agencies vary widely in their technological capabilities and business processes. Some receive over 40,000 applications. Applicants range from unknown individuals to well-published research institutions. Some agencies do not establish close business relationships with applicants until a grant is awarded. Other agencies have ongoing relationships with most of their applicants who already meet stringent applicant qualifications. Each agency has its own process for receiving and awarding grants. Normally, applicants, grantees, and federal agencies operate on limited budgets.

## Operational Concept

The Federal Commons provides electronic registration, user authentication, data translation, secure data transmission, and data routing services to support grant application, award, reporting, closeout, and profile maintenance activities. The applicant/grantee user interface to the Federal Commons is a Web browser or other technology appropriate for the task at hand and technology level of the applicant/grantee. The applicant/grantee community includes universities, research institutions, state and local governments, tribal governments, non-profits, and small businesses. There are over 25 federal grant-making agencies. See the appendix for a list of agencies supporting the Federal Commons.

Organizations that may potentially apply for grants register with the Federal Commons to establish points of contact (Authorized Organizational Representatives (AORs) and Account Administrators (AAs)), and assurances and certifications about the work place. This information is maintained on the Federal Commons in an organization profile. The registration process includes the specification of federal agencies at which the organization is likely to apply for grants. Professionals intending to become principal investigators (PIs) within the organization also register, creating profiles defining their career background and other personal characteristics. Registration information and passwords are used for user authentication when an individual logs on to the Federal Commons. Organizations also register with agencies using agency-specific processes to establish trusted business relationships. When such a relationship is established, the agency notifies the Federal Commons.

After selecting a grant opportunity through other government postings such as the FedBizOpps and agency web sites, an applicant obtains standard application form elements through the Federal Commons<sup>2</sup>. These application elements may vary depending on the type of research (e.g., construction, health, education) and subjects (e.g., animal, human). The application form elements are being standardized. (See ANSI ASC X12 Grant or Assistance Application Transaction Set 194 and Standard Form (SF) 424 for work in this area.) The applicant enters the relevant information into the form elements he has downloaded from the Federal Commons. Alternatively, an applicant could complete the forms on the Federal Commons, storing the partially completed forms on the Federal Commons as he develops them. Once completed and approved, the AOR submits a grant application through the Federal Commons, identifying the receiving agency. The Federal Commons translates the application into the appropriate EDI or other standard data set if

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<sup>2</sup> The exact method for obtaining form elements and knowing which form parts or elements are necessary for a complete application for a particular grant solicitation have not been determined at this time. This writing assumes the forms will be available through the Federal Commons.

necessary<sup>3</sup> and routes it electronically to the intended agency. The agency then processes the grant application in accordance with its own agency processes.

While a grant application is being evaluated at an agency, an applicant can query the status of the application through the Federal Commons using his web browser. In one query, the applicant (or organization) can query the status of all applications he has submitted at all agencies with which he is registered. After evaluating applications, the grant-making agency notifies the applicant of a grant award electronically through the Federal Commons, providing a copy of the negotiated terms and conditions that constitute the contract.

Once a grant is awarded and in progress, the grantee reports financial, performance, and invention information to the sponsoring agency. For financial and performance reporting<sup>4</sup>, the grantee obtains standard form elements through the Federal Commons, completes them, and submits them to the grant making agency through the Federal Commons. Invention reporting as required by the Bayh-Dole Act is done through the Interagency Edison electronic reporting tool ([www.iedison.gov](http://www.iedison.gov)) and is outside the scope of the Federal Commons. Grant making agencies review grant progress and approve payments to the grantee. These payments are, at this time, made through one of three payment agents, either Health and Human Services (HHS), Treasury, or, for DoD grants, DoD. The long-term intent is to request these grant payments electronically<sup>5</sup>. The agency notifies the grantee electronically through the Federal Commons that a grant payment has been approved. Grantees can submit electronic grant products through the Federal Commons.

When a grant is completed or otherwise terminated, there is a grant closeout process. The agency requests certifications and other information from the grantee through the Federal Commons. The grantee returns the certifications and other information to the agency through the Federal Commons. This completes the cycle of grant application, reporting, and closeout processes to be supported by the Federal Commons.

The Federal Commons transmits sensitive personal and competitive information. Data transmitted to and from the Federal Commons over public networks requires encryption. Data stored on the Federal Commons requires security protections.

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<sup>3</sup> For the pilot, the interface between the Federal Commons and a grant-making agency will use CORBA. The method of interface and use of EDI for the final interface has not been firmly established at this writing.

<sup>4</sup> The methods and forms for progress and financial reporting have not been established at this writing. The methods described are a possible way to implement these operations.

<sup>5</sup> Details of requesting payments and notifying grantees of pending payments through the Federal Commons are not established at this writing.

**Expected Threats**

Data transmissions and stored data associated with the Federal Commons is subject to security threats from hackers and other sources.

As a project with no established stable funding, the Federal Commons is at risk for partial, piecemeal efforts to develop and maintain it.

As a project that requires coordination among over 25 federal agencies and the public grants community, the Federal Commons project will have coordination and agreement difficulties and may be subject to political influences.

**Rules, Criteria, and Conventions Followed**

Federal Enterprise Architecture Framework (FEAF) Version 1.1, Chief Information Officers Council, September 1999.

DoD Architecture Framework Version 2.1 Draft, 27 July 2000.

C4ISR Architecture Framework Version 2.0, C4ISR Architecture Working Group (AWG), 18 December 1997.

See the Technical Architecture Profile for additional applicable standards.

**Assumptions**

The details of many Federal Commons activities are not yet well defined. The descriptions used in this document are a possible solution and are predicated on several assumptions. The following concepts have potential merit, but are not approved and are therefore assumptions for this architecture.

- Standard forms or form parts to apply for grants will be available through the Federal Commons.
- Grant award notices will be made through the Federal Commons. These notices will be sent in a timely manner to allow them to precede publicity notices.
- Standard forms or form parts for reporting grant progress and financial information will be available through the Federal Commons.

- Notices to grantees that a payment has been authorized and requested of a payment agent will be sent through the Federal Commons.
- Grantees can submit electronic products to grant making agencies through the Federal Commons.
- Grantees can receive feedback from grant making agencies through the Federal Commons.
- Grant closeout notifications and forms will be sent from grant making agencies to grantees through the Federal Commons.
- Grant closeout certifications and other information will be sent from grantees to grant making agencies through the Federal Commons.

The following are other assumptions.

- Grant applicants can be located throughout the world.
- Grant making agencies are located in the U.S.
- Users will access the Federal Commons Web site with Netscape 3.X or MS Internet Explorer 4.X or later.
- Any labor or other expense an organization or professional incurs to register with the Federal Commons is borne by the organization or professional.
- Electronic Data Interchange (EDI) will be available as one of the data formatting options.

## **Findings**

See the Federal Pilot Architecture Project Analysis and Lessons Learned document for a discussion of the findings.

## **Tools and File Formats Used**

Ptech Framework and Microsoft Office 98 were used to develop the architecture products.

### Level of Effort and Cost of Building the Architecture Description

<u><i>Item</i></u>	<u><i>Staff Months</i></u>
Planning	2.5
Model Development	9.0
Ptech Framework Capture	TBD
Total	TBD

Prior to initiation of the pilots, three staff months of management education and planning time was spent to educate the community on the value of an enterprise architecture, the value of a framework, and the value of having product descriptions in the framework, and to plan the pilots and establish tool selection criteria.

The Federal Grants Pilot Architecture used a total of 9.0 staff months over a period of five months. This included about 2.8 staff months from the primary analyst; 6.0 staff months from other analysts providing interview, sounding board, document writing, cross checking, editing, and review support; and about 0.2 staff months of management time. This does not include the time to develop the products in PTECH FrameWork, but does include development of the products using Microsoft Office tools. The grants pilot used one analyst to develop the models and another analyst to cross check the models.

### Lessons Learned in Building the Architecture Description

See the Federal Pilot Architecture Project Analysis and Lessons Learned document for a discussion of the lessons learned.

## **APPENDIX to Overview and Summary Information: Participating Agencies**

The following agencies award grants and support the designation and use of the Federal Commons as the single portal for electronic business interactions with non-federal entities related to grants award and administration. These agencies stated their support in the Federal Register Wednesday, January 17, 2001, Pages 4583-4593.

- Agency for International Development
- Air Force Office of Scientific Research (AFOSR)
- Army Research Office (ARO)
- Corporation for National and Community Service
- Department of Agriculture
- Department of Commerce (DOC)
- Department of Defense (DoD)
- Department of Education (ED)
- Department of Energy (DOE)
- Department of Health and Human Services (HHS)
- Department of Housing and Urban Development (HUD)
- Department of the Interior (DOI)
- Department of Justice
- Department of Labor (DOL)
- Department of State
- Department of the Treasury
- Department of Transportation (DOT)
- Department of Veterans Affairs
- Environmental Protection Agency (EPA)
- Federal Emergency Management Agency (FEMA)
- Institute of Museum and Library Services - National Foundation on the Arts and the Humanities
- National Aeronautics and Space Administration (NASA)
- National Endowment for the Arts – National Foundation on the Arts and the Humanities
- National Science Foundation (NSF)

## **Federal Grants Pilot Architecture**

## **Initial Pilot**

Office of Naval Research (ONR)  
Small Business Administration  
Social Security Administration





## 2.0 High-Level Operational Concept Description

### Product Guidance and Characteristics

The High-Level Operational Concept Description provides a graphical representation of operations in terms of such things as mission, functions, participants, organizations, and/or geographic locations of elements. It can be used in presentations to high-level decision makers and can help orient and focus detailed discussions. Any topics that should be addressed in discussions should be included in the facing page text. See the *DoD Architecture Framework Version 1.0 DRAFT* Volume II.

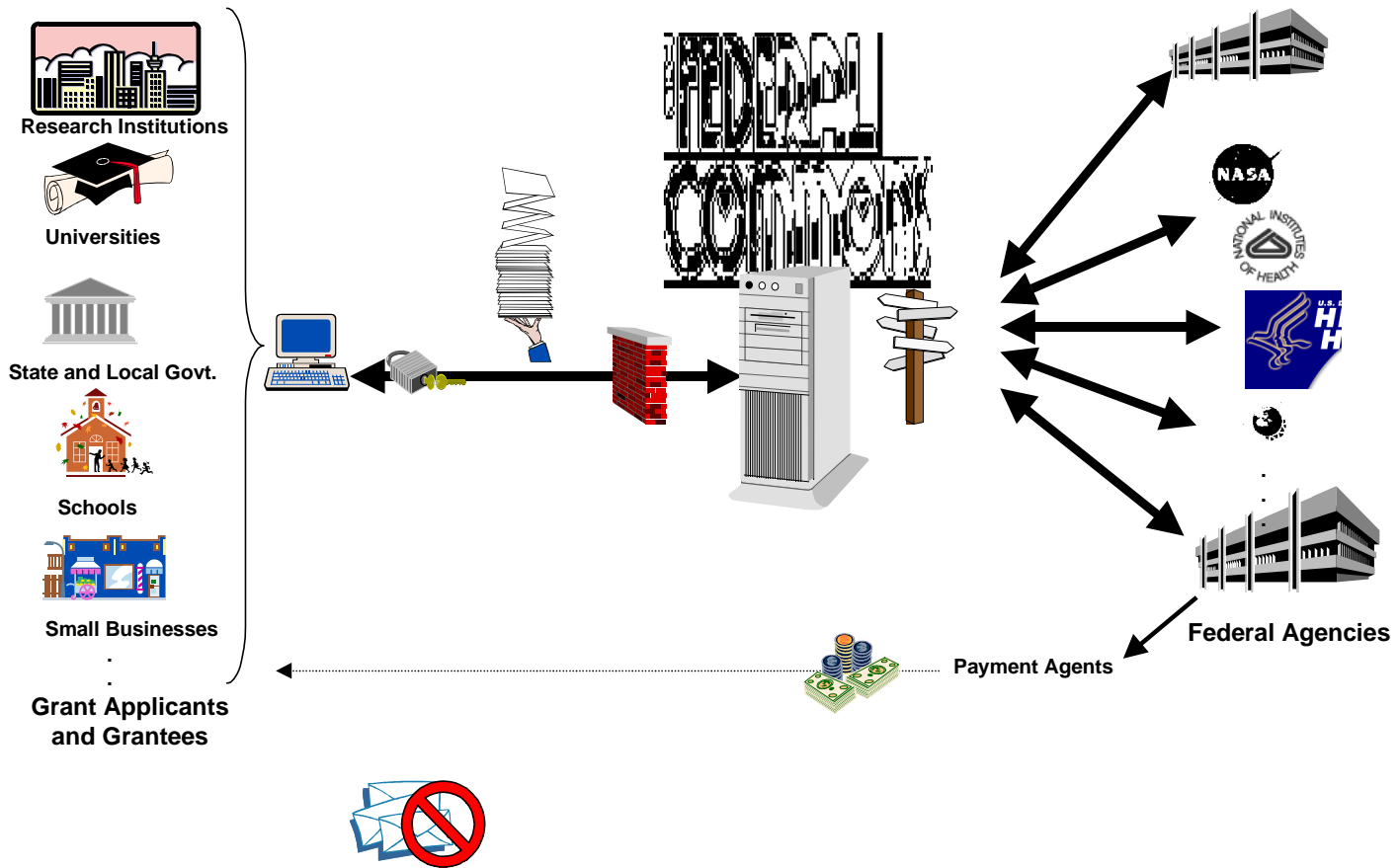
### Product Discussion

The Federal Commons provides a common face of government for electronic grant administration for grant applicants and recipients. Applicants include research institutions, universities, state and local governments, tribal governments, non-profits, and small businesses. Applicants and grant recipients, called grantees, could be located throughout the world. Applicants and grantees can register, create organizational and professional profiles, apply for grants, query application status, report grant progress and financial expenditures, deliver grant products, and supply closeout information electronically through the Federal Commons. Applicants and grantees can use common forms, eliminate some duplication of effort, and use a single contact point to transfer grant related information to federal agencies.

The Federal Commons provides services to register and authenticate applicant and grantee users, store profiles, provide data translation capabilities into the correct interface for a particular receiving federal agency, and route information to a particular agency, all with appropriate security safeguards for the information.

Federal agencies receive grant applications, progress reports, and electronic grant products from applicants and grantees through the Federal Commons. Federal agencies can provide application status, award notification, feedback, and payment authorization notifications, and can initiate the forms for grant closeout through the Federal Commons. Personnel within a federal agency dealing with grant administration could be in different locations.

The Federal Commons portal will support over 600 grant programs awarding 300 billion dollars from over 25 participating federal agencies. A main intent of the Federal Commons is to streamline and simplify grant application and reporting procedures consistent with the Federal Financial Assistance Management Improvement Act of 1999 (P.L. 106-107). By using the Federal Commons, the Government and the public grants community gain many efficiencies of electronic commerce and electronic data interchange (EDI) including increased speed of communication, elimination of data entry, reduced errors, and standardization of data. Federal agencies also can share technology and information and avoid duplication of effort.



# Federal Commons High-level Operational Concept Description Federal Grants Pilot Architecture

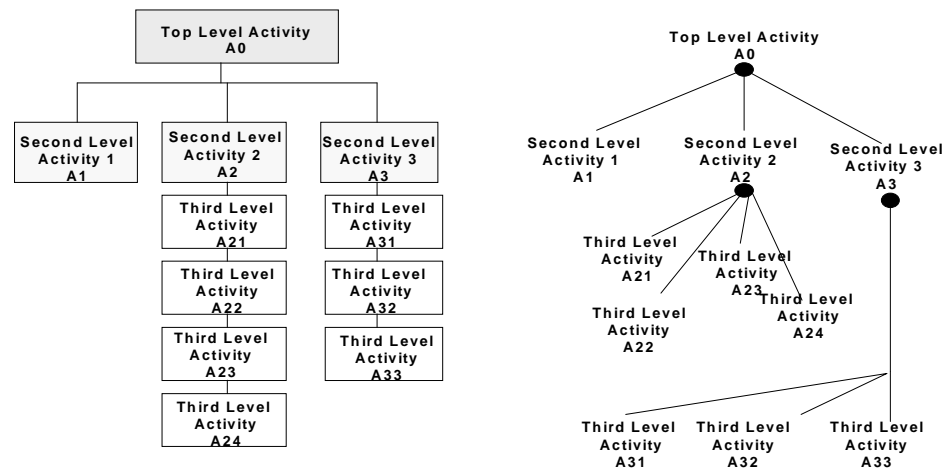
2/23/2001

### 3.0 Activity Model

#### Product Guidance and Characteristics

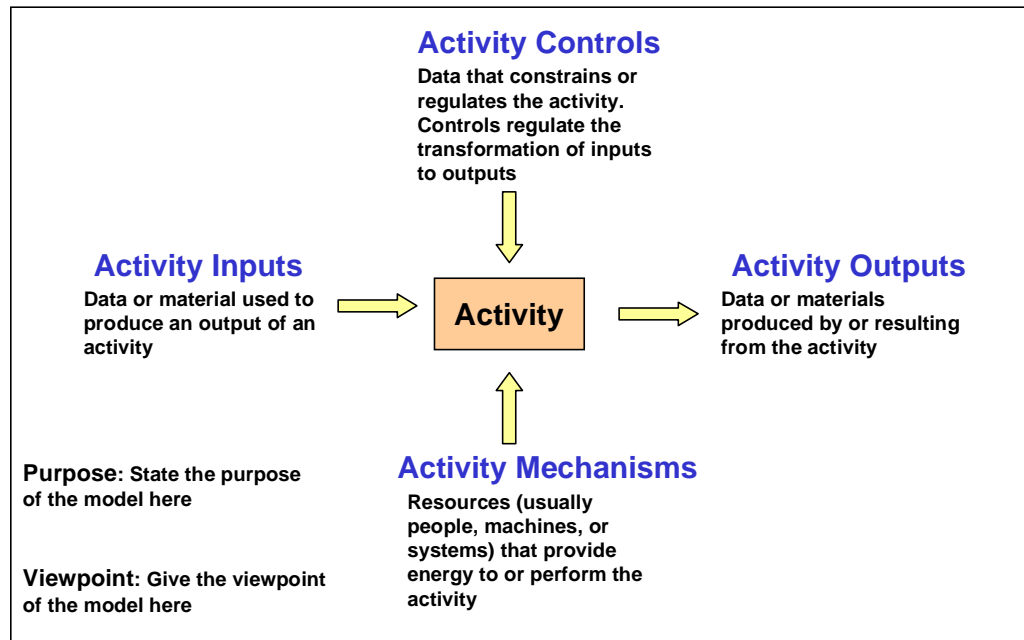
To depict activities in the Federal Grants Pilot Architecture, the IDEF0 language has been used. The activity model consists of several types of diagrams, including an activity hierarchy diagram, a context diagram, and decomposition diagrams. The following is a brief guide to reading IDEF0 diagrams.

**Activity Hierarchy Diagram** - This diagram is sometimes called a Node Tree Diagram. It shows the hierarchical relationships among activities. The top box contains the overall activity of interest and is labeled A0. This overall activity is decomposed into sub activities labeled A1, A2, A3, etc. These activities can be further decomposed if appropriate. The diagram is usually presented in one of two forms. One uses a columnar arrangement of the activities. The other has a more tree-like appearance. The choice of which style to use is the modeler's and will depend on the number of boxes – breadth and depth of the hierarchy - to be presented and the customary practice of the modeling group.



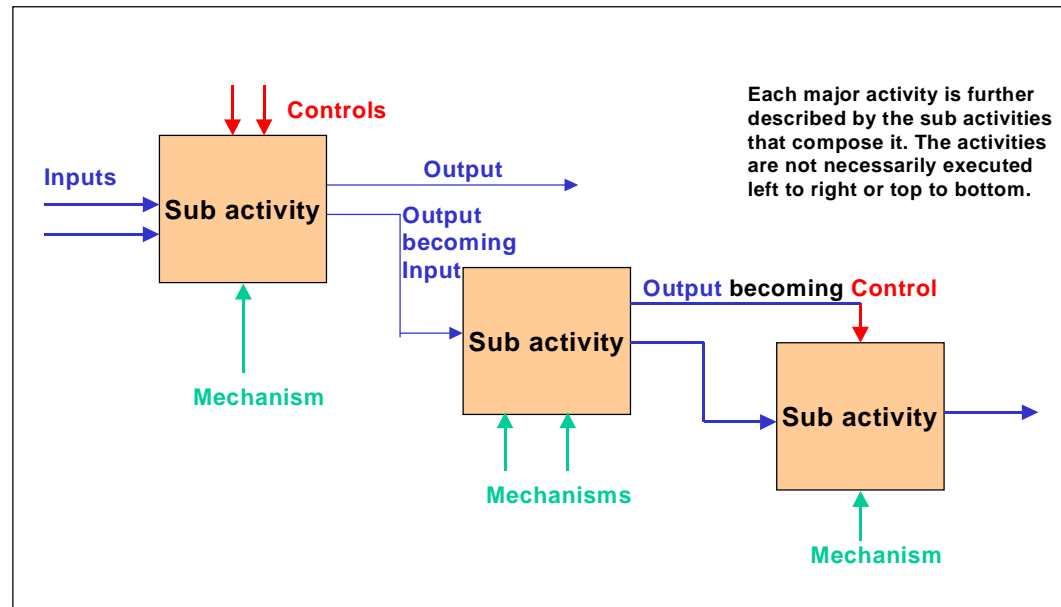
Two Styles of the Activity Hierarchy Diagram

**Context Diagram** – This diagram establishes the bounds for the model and depicts the major Inputs, Controls, Outputs, and Mechanisms (ICOMS) used to perform the activity. The diagram consists of a single box and its related ICOMS. It sets the general context and scope of what is being modeled and displays the purpose and viewpoint of the model. This diagram is labeled A-0 (A minus 0).



**Context Diagram**

**Decomposition Diagram** – This diagram describes the components of an activity and their relationships to one another. The diagrams also show the flow of ICOMs among activities. A decomposition diagram shows only one level of decomposition below its parent on each page. The first decomposition diagram of a model is labeled A0. The subsequent second level decomposition diagrams are labeled with the number of the box within A0 that they refine, e.g., A1 or A3. Third level decomposition labels could be, for example, A11 for a box that refines A1 or A32 for a box that refines A3. There is no significance to the size of boxes. Some are larger to accommodate spacing ICOMs neatly. By tradition the boxes are arranged upper left to lower right within a page. The order of boxes on the page does not imply a sequence of operation.



**Decomposition Diagram**

**Facing Page Text** – While each diagram should, by and large, stand on its own, the facing page text for the diagram provides a place to explain ambiguities or additional details not evident in the diagram.

The A-0 facing page text emphasizes the purpose and viewpoint of the model and the high-level ICOMs.

The A0 facing page text description emphasizes the interaction among the high-level activities performed. Lower level decomposition diagram facing page text emphasizes the interactions between the activities and how the activities support each other. The text can address input, output, control, or mechanism issues, who is involved in performing the activity, anomalies, what could change a process, who approves the outputs, or other aspects of interest.

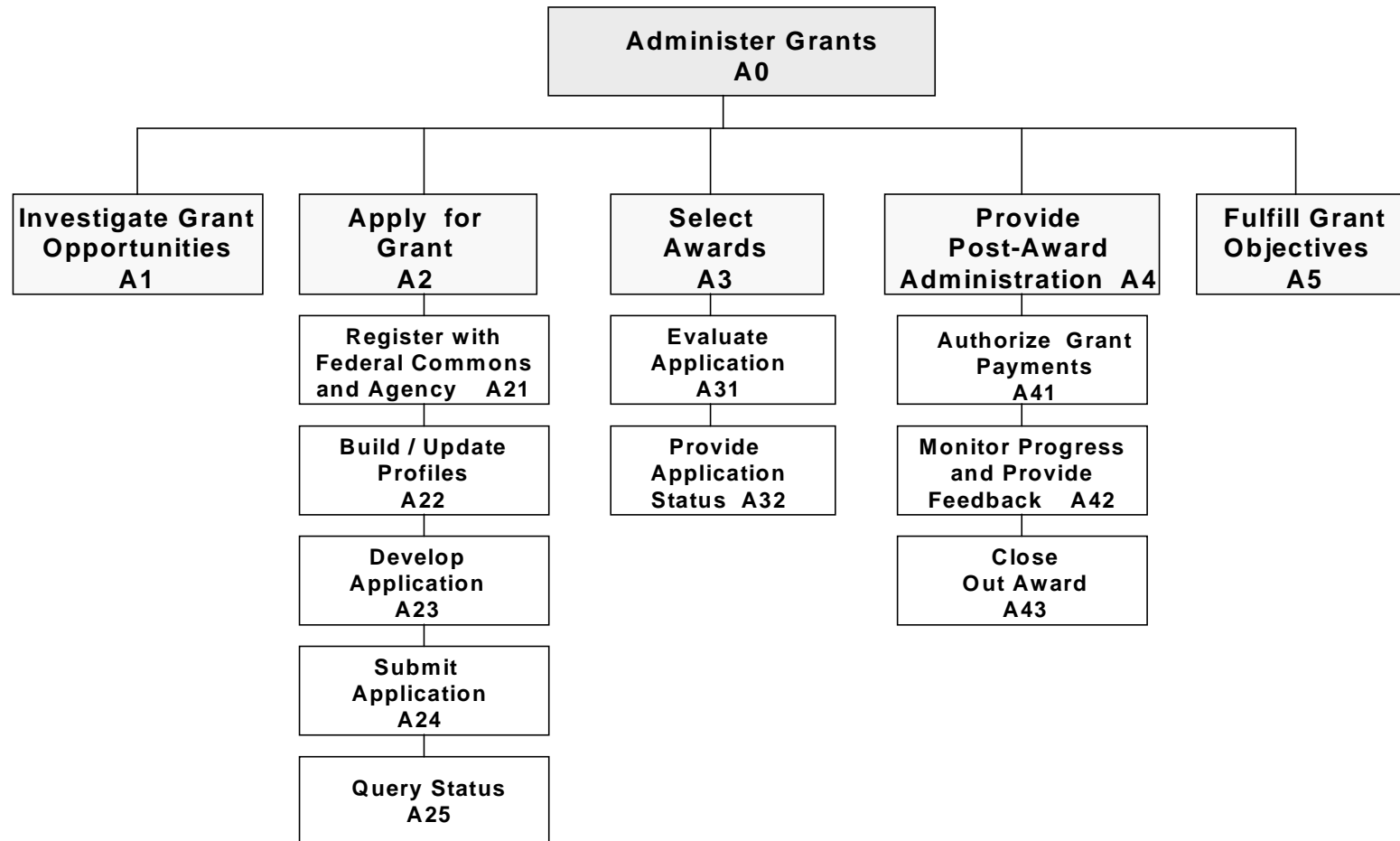
### 3.1 Activity Hierarchy Diagram

#### Product Discussion

This diagram shows the activity hierarchy for grants administration through the Federal Commons. The top box (A0) describes the overall activity of interest. This overall activity is decomposed into five sub activities (A1 through A5). Some of these activities are further decomposed as shown in the diagram.

Investigate Grant Opportunities is outside the scope of the Federal Commons, but is included in the Administer Grants activity set for completeness to explain the total process. Fulfill Grant Objectives is primarily a grantee activity, but it generates and receives materials from the Federal Commons. The detail of the grantee performing the grant tasks (as opposed to grant administration) is not shown.





**Activity Hierarchy Chart**  
Federal Grants Pilot Architecture

2/12/2001

## 3.2 Administer Grants Context Diagram (A-0)

### Product Discussion

The purpose of the Administer Grants Activity Model is to describe the activities, information exchanges, and participants in grant administration through the Federal Commons, and to provide a basis for the other work products in the Federal Grants Pilot Architecture. The viewpoint taken in this model is that of the users of the Federal Commons – applicants, grantees, and federal grant making agencies.

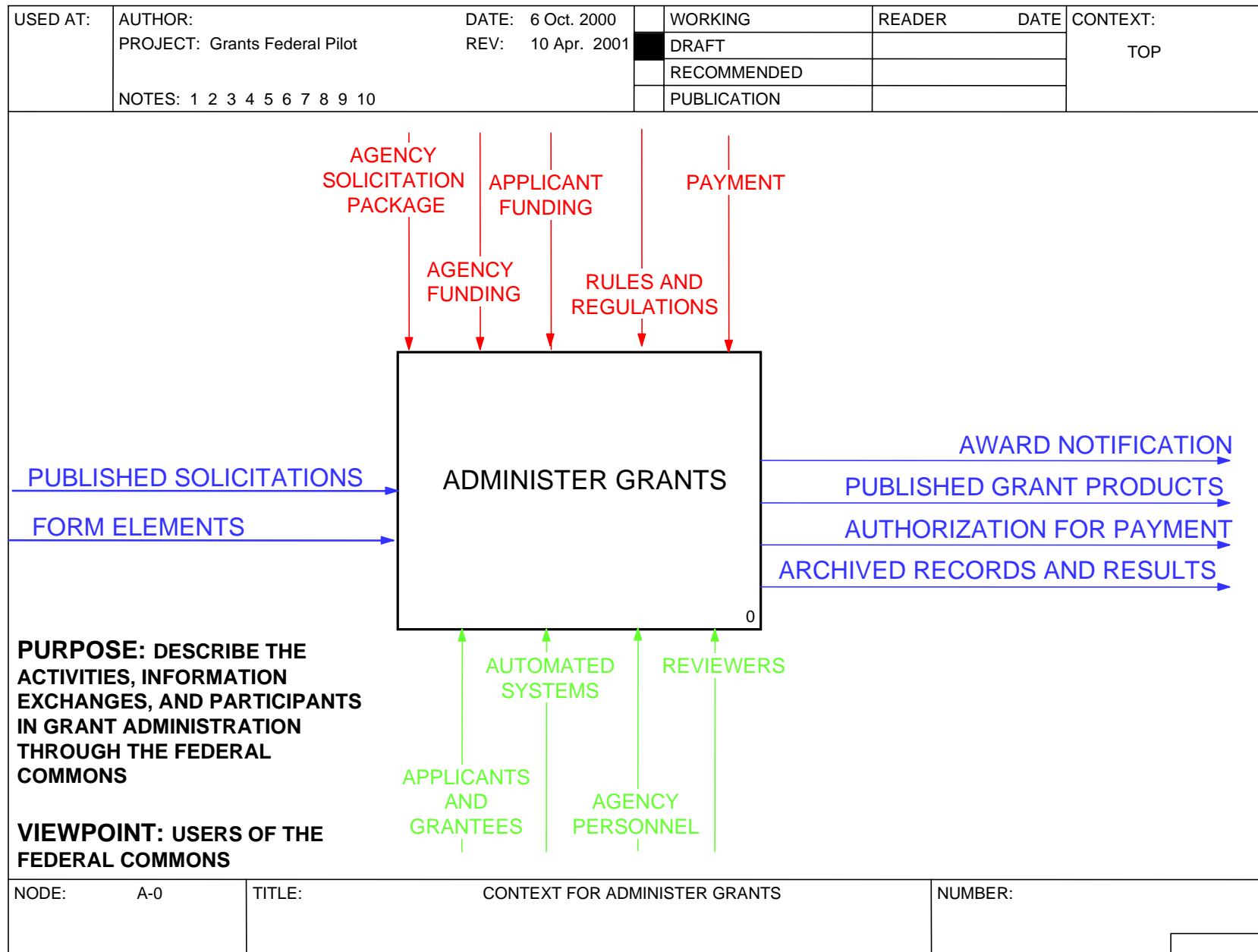
The purpose of the Federal Commons is to provide a common face of government for electronic grant administration. The Federal Commons will support over 600 grant programs awarding 300 billion dollars from over 25 participating federal agencies. The Federal Commons System supports electronic processes providing registration, authentication, profile, secure transmission, translation, and routing capabilities. It provides a single place for the public grants community to submit materials to federal agencies using common forms and similar procedures. This is to streamline and simplify grant application, administration, and reporting procedures consistent with the Federal Financial Assistance Management Improvement Act of 1999 (Public Law (P. L.) 106-107). The Government and the public grants community gain many efficiencies of electronic commerce and electronic data interchange (EDI) including increased speed of communication, elimination of data entry, reduced errors, and standardization of data. Grant making agencies benefit by sharing technology and information and eliminating redundant efforts.

Grant applicants include research institutions, universities, state and local governments, tribal governments, non-profits, small businesses, and others. Applicants apply for grants using forms available through the Federal Commons and submit the application to the sponsoring agency through the Federal Commons. Federal agencies receive applications, supply the status of applications, and notify recipients of awards through the Federal Commons. Once awarded a grant, grantees can report grant progress and funding expenditures, deliver electronic products, and receive notice of payment authorizations through the Federal Commons. Agencies and grantees can also perform grant closeout activities through the Federal Commons.

Grants Administration is carried out under federal and other rules and regulations and the terms and conditions included in the award notice for a particular grant. Payments to grantees made by authorized *payment agents* are outside the scope of the Federal Commons at this time. If grant products are published and/or archived, these processes use established mechanisms and vehicles that are also outside the scope of the Federal Commons.

Development of the Federal Commons is being guided by the Inter-Agency Electronic Grants Committee (IAEGC) which was formed in 1997, and its Federal Commons Subcommittee, which was formed in 1999. The IAEGC was established to coordinate, promote, and facilitate the effective use of Electronic Commerce (EC) throughout the federal grants community. It is linked to the Chief Financial Officers (CFO) Council through its Grants Management Committee, the Chief Information Officers (CIO) Council through its Interoperability Committee, and the Electronic Commerce Committee.

Concepts for the Federal Commons are being tested through a series of pilots as money becomes available. Pilots for account registration and administration, profile administration, and application status checking are near completion. Pilots for state and local application submission and research application submission are in work. The Logistics Management Institute (LMI) is performing tasks to establish common data elements for grants administration.



**PURPOSE:** DESCRIBE THE ACTIVITIES, INFORMATION EXCHANGES, AND PARTICIPANTS IN GRANT ADMINISTRATION THROUGH THE FEDERAL COMMONS

**VIEWPOINT:** USERS OF THE FEDERAL COMMONS

### 3.3 Administer Grants (A0)

#### Product Discussion

The Administer Grants model presents the high-level activities necessary to administer federal grants from application through closeout that are facilitated by the Federal Commons. The presentation is from the viewpoint of applicants, grantees, and grant making agencies that will use the Federal Commons to conduct business. The Federal Commons serves as a secure conduit and data translator between the business parties, providing a single point of contact and facilitating use of common forms and simplified methods for grants administration.

#### A1 Investigate Grant Opportunities

Potential applicants search for grant opportunities through the FedBizOpps web site, agency web sites, and other sources to select grant solicitations for which they wish to apply. The only Federal Commons support to this activity is a web transfer link to FedBizOpps.

#### A2 Apply For Grant

Grant applicants select one or more solicitations for which they wish to apply. Organizations register with the Federal Commons and grant making agencies, provide organizational and professional profiles of certifications and/or accomplishments, develop grant applications using application form elements available through the Federal Commons, submit their applications to agencies, and query agencies on the status of their applications through the Federal Commons,

#### A3 Select Awards

A grant-making agency evaluates applications received according to its own agency practices. An agency provides status information on a grant application from its database of this type of information when requested. An agency notifies the grant recipient, now a grantee, when a positive decision is made. The agency includes a copy of the terms and conditions, which constitute the contract with the award notification.

#### A4 Provide Post-Award Administration

A grant making agency tracks the performance and funding expenditures of the grantee through regular progress reports prepared by the grantee and authorizes payments. An agency can provide feedback to the grantee if appropriate. At the termination of the grant, the agency initiates closeout procedures for which the grantee must supply certain certifications to the agency.

#### A5 Fulfill Grant Objectives

Grantees carry out the tasks necessary to complete their grant objectives incorporating appropriate agency feedback. They submit progress reports, products, and closeout information to the agency through the Federal Commons.

## Initial Pilot



### 3.4 Apply for Grant (A2)

#### Product Discussion

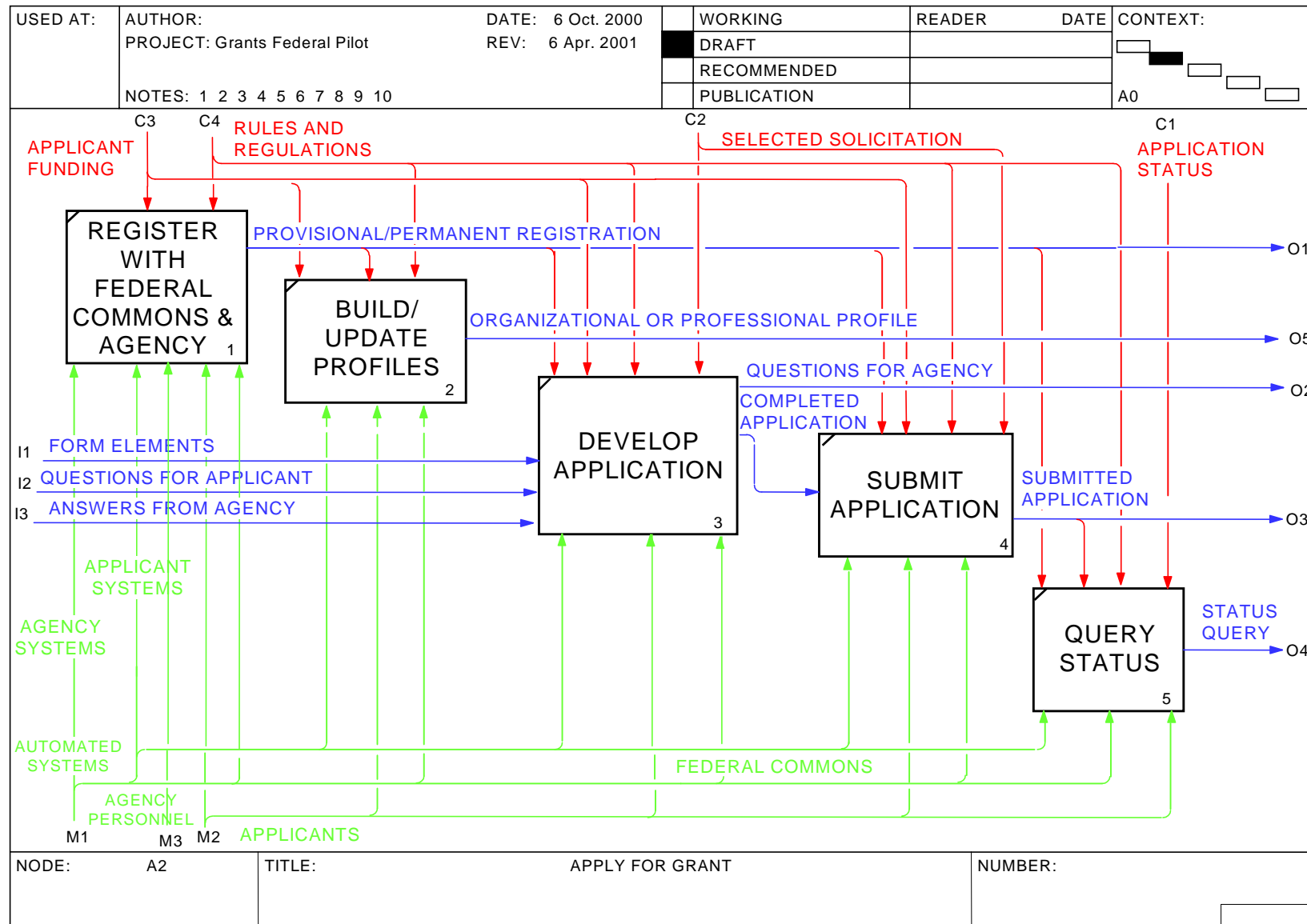
Potential grant applicants investigate published grant solicitations through the FedBizOpps web site or other sources and select one or more solicitations for which they wish to apply. Applicants register with the Federal Commons and grant making agencies, provide organizational and professional profiles of certifications and/or accomplishments, develop grant applications using application form elements available through the Federal Commons, submit applications to the sponsoring agency, and query agencies on the status of submitted applications.

#### A21 Register with Federal Commons and Agency

Organizations applying for grants register with the Federal Commons to identify an Authorized Organizational Representative (AOR) and possibly an Accounts Administrator (AA), to develop organizational profiles, and to create user accounts for their affiliated professionals. Organizations and professionals must be registered with the Federal Commons before they can complete a profile or query the status of an application. The Federal Commons uses registration information and passwords for user authentication. The Federal Commons assigns what is called a *provisional relationship* to the registered organization. Each agency determines whether and when in the grant application and award process, e.g., before application, before award, or after award, an organization must establish a *trusted relationship* with them, its own procedures for establishing the trusted relationship, and what information they require to establish the trusted relationship beyond that required to register with the Federal Commons. Organizations initiate a request for registration with one or more agencies through the Federal Commons, then follow agency procedures to complete the process outside the scope of the Federal Commons. The agency notifies the Federal Commons that a trusted relationship has been established and the Federal Commons records the establishment of a *permanent registration* between the agency and the organization. A permanent registration gives the organization access to all the Federal Commons capabilities, e.g., grant reporting.

#### A22 Build and Update Profiles

The Federal Commons generates a skeleton profile for an organization or professional when their account is created, i.e., when they register with the Federal Commons. An organization completes or updates its profile with such information as its tax identification number, business type, and assurances and certifications for federal lobbying regulations, Drug-Free Workplace Act, federal regulations regarding research misconduct, etc. The user, normally a professional affiliated with an organization, maintains a profile



including race, disabilities, biographical information, honors, degrees, etc. Agencies can obtain organization and professional profiles from the Federal Commons. Because the profiles contain private information, they must be stored, updated, and transmitted with secure processes.

#### A23 Develop Application

To apply for a specific grant, applicants develop their applications using form(s) available through the Federal Commons. They can complete these forms and save work in progress on the Federal Commons if desired, or download the forms to their own system and complete the form on their equipment. During the application development process, the applicant may have questions for the agency and may receive answers to these questions from the agency. During the agency application review and evaluation process, the applicant may receive questions from the agency requesting further information regarding his or her application. The applicant may develop additional materials or make required changes to the application in response to the agency's questions or for other valid reasons and resubmit the application.

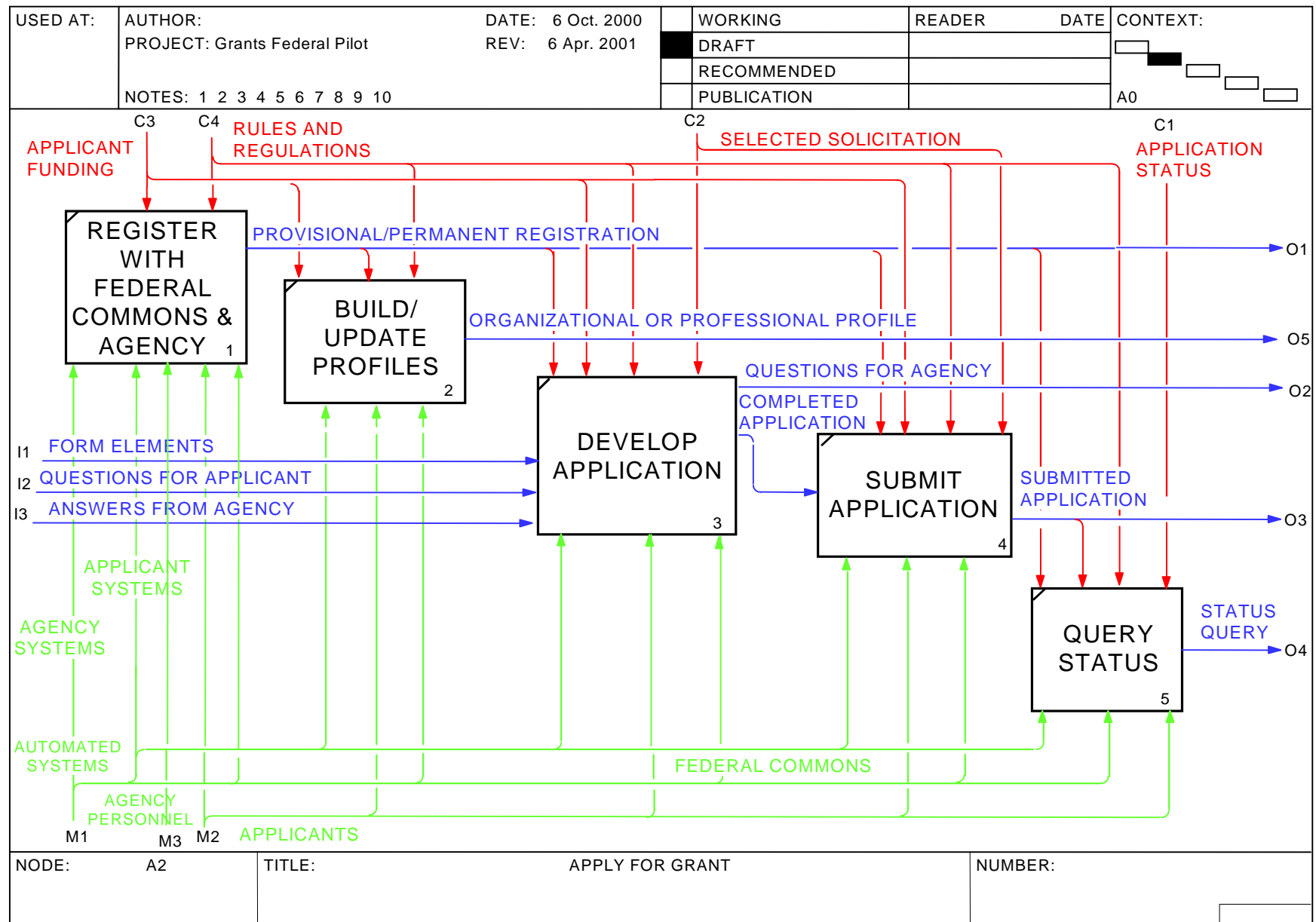
#### A24 Submit Application

Applicants have their draft application reviewed and approved following the internal procedures of their organization. The Authorized Organizational Representative (AOR) then submits the completed and approved application through the Federal Commons to the grant making agency. If, during the review process, additional information or revisions to an application need to be submitted to the agency, the additional information or revisions may also need to be approved by the applicant organization prior to re-submission. Because the application contains pricing information and may contain sensitive original ideas or competitive materials, the application must be transmitted with appropriate security safeguards.

#### A25 Query Status

After one or more grant applications have been submitted to agenc(ies), an AOR, AA, or user can query the status of the application(s) through the Federal Commons using a web interface. An authorized user can query the status of only his or her own application(s). An AOR or AA can query the status of any proposal submitted from his or her organization. The user will receive the tracking numbers, titles, status, and agency-specific detail information for each application in his query.





### 3.5 Select Awards (A3)

#### Product Discussion

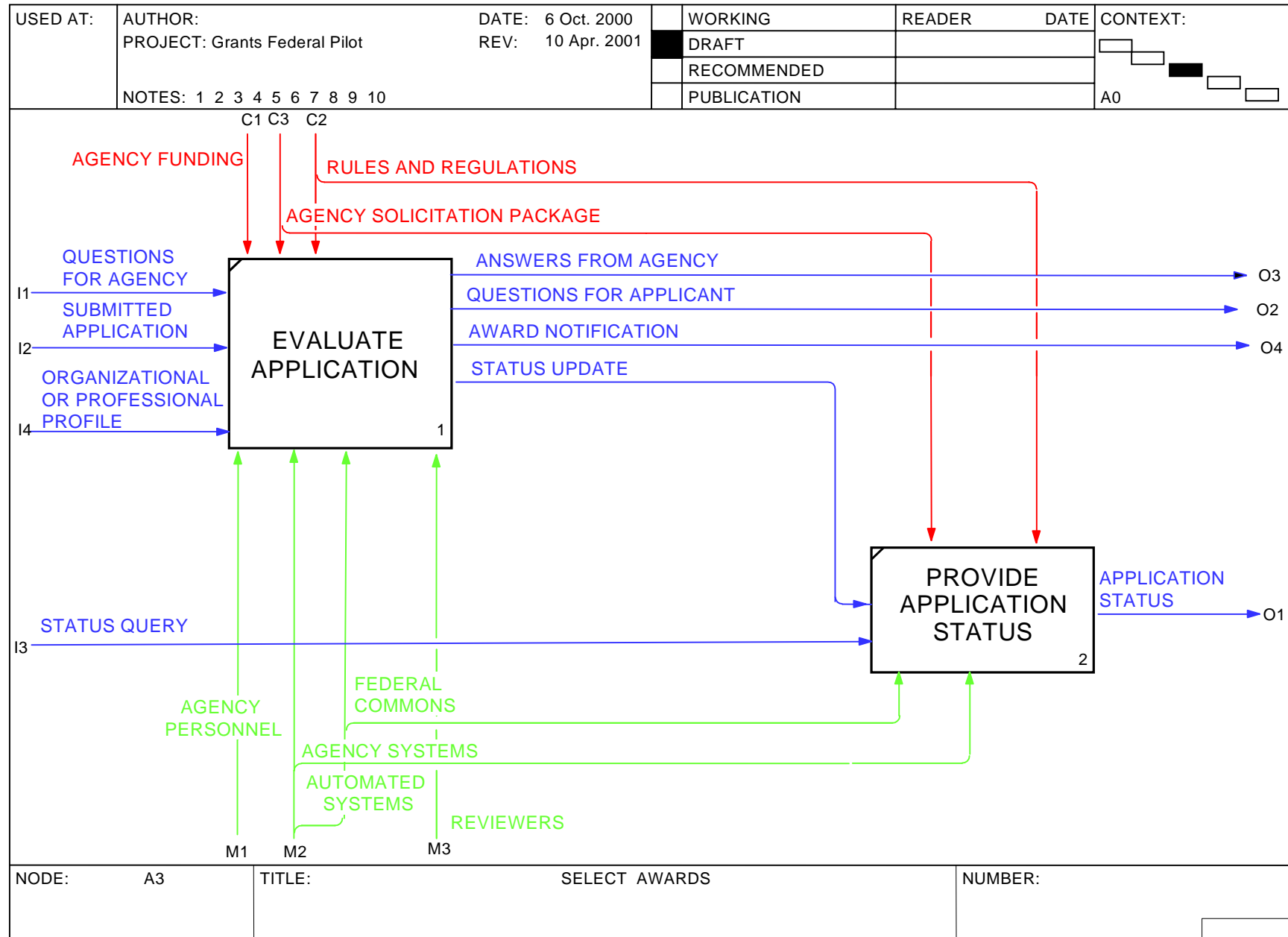
A grant-making agency evaluates applications received according to its own agency practices and provides status information on a grant application when requested. An agency notifies the grant recipient when a decision is made and provides a copy of the terms and conditions, which constitute the contract.

#### A31 Evaluate Application

Prior to receiving a grant application, an agency may receive questions from potential applicants. These questions and their answers back to the applicant are dealt with outside the Federal Commons at this time. Once grant applications are received by a grant-making agency, the agency may perform reviews of the applications. This process is based on procedures and criteria established by the agency in the solicitation package. The agency review process may involve reviewers from outside the agency, who typically provide objective reviews of the technical portion of the application. Transmission and receipt of review materials to and from outside reviewers are outside the scope of the Federal Commons at this time. During the review, the agency may pose questions or request additional information from the applicant. Such questions are dealt with outside the Federal Commons at this time. The agency notifies grant winners through the Federal Commons, providing the terms and conditions of the grant, which constitute the contract, with the award notification.

#### A32 Provide Application Status

The grant-making agency provides organizations and users status information on their application(s) through the Federal Commons when requested. The agency determines the detail to be provided. Typically, status might include such items as the date peer review began, program officer contact information, and the current status of the application (i.e., Awarded, Recommended, Pending, Withdrawn, Declined, or Inappropriate/Ineligible). Status of a particular application is provided only to the relevant user (Principal Investigator (PI) applicant), AOR, or AA for the submitting organization.



### 3.6 Provide Post-Award Administration (A4)

#### Product Discussion

A grant making agency tracks the performance and funding expenditures of the grantee through regular progress reports prepared by the grantee and authorizes payments. At the termination of the grant, the grant-making agency initiates closeout procedures for which the grantee must supply certain certifications.

##### A41 Authorize Grant Payments

The grant-making agency authorizes grant payments to the grantee based on the terms and conditions of the grant. The grant award may be made in one or more payments. Payments may depend on satisfactory progress in fulfilling the objectives of the grant. The actual payments are made by one of three government payment agents: HHS (Payment Management System (PMS)), Treasury (Automated Standard Applications for Payments (ASAP)), or, for DoD grants, the DoD (Defense Procurement Payment System). The grant-making agency sends a notification authorizing payment to the identified payment agent. The agency also sends a notification of the pending payment to the grantee through the Federal Commons.

##### A42 Monitor Progress and Provide Feedback

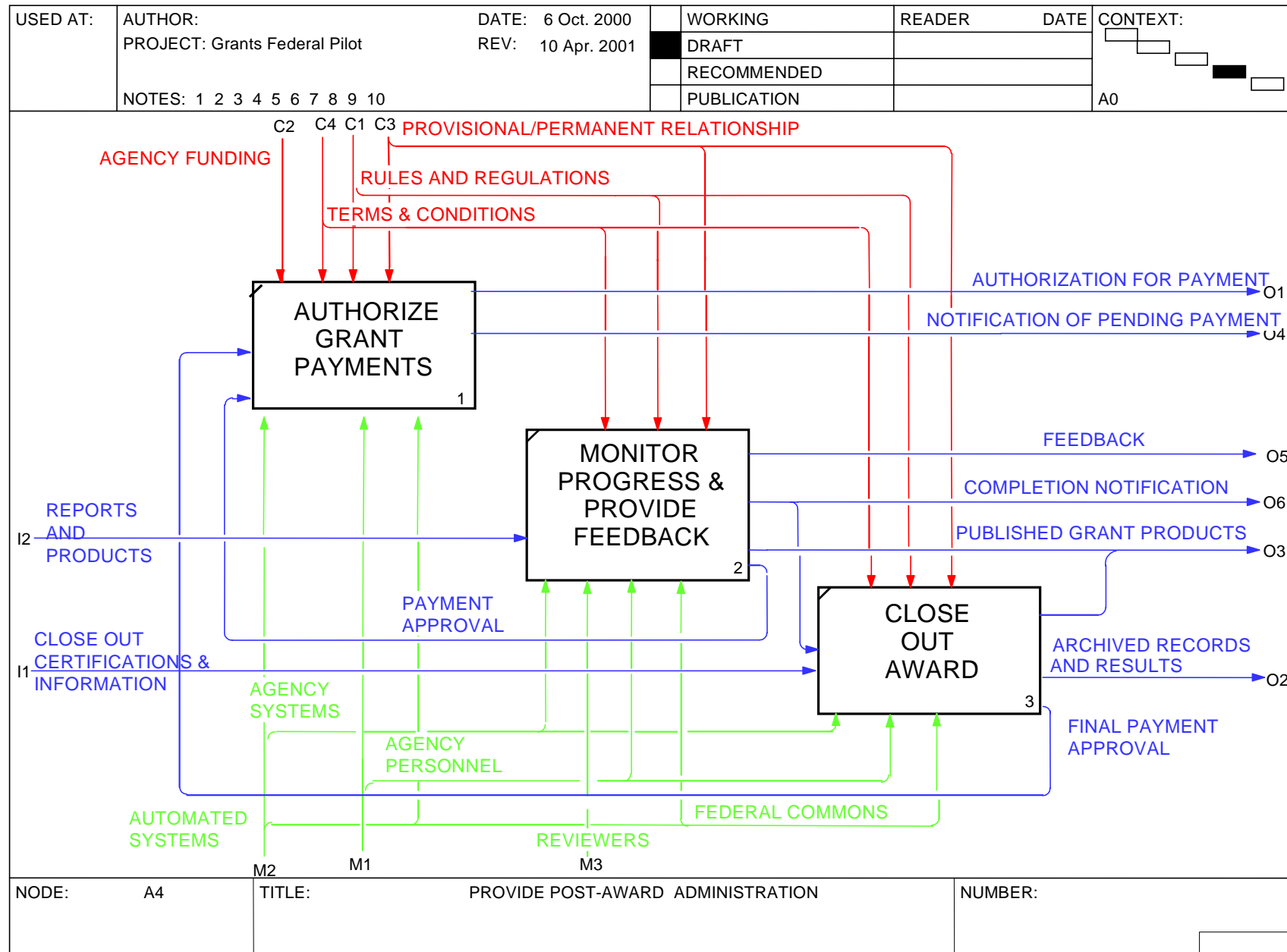
The grant-making agency monitors progress of the grant based on the terms and conditions of the grant. Monitoring includes reviewing financial, performance, and invention reporting from the grantee. The monitoring process may involve reviewers from outside the agency, who typically provide objective reviews of the technical portion of progress reports and products produced by the grantee. Approved grant products, such as reports, may be published on Federal web-sites or other publicly available sources, but not on the Federal Commons. Feedback may be provided to the grantee such as additional detailed direction or modified objectives for the grant. In some cases, payment may be based on satisfactory progress. When the requirements of the grant have been satisfactorily fulfilled or the agency decides to terminate the grant for some other reason, e.g., loss of funding, or lack of progress, the agency issues a completion notice to the grantee so that award close out procedures can be started.

##### A43 Close Out Award

A grant making agency can decide to end a grant because its objectives have been satisfactorily fulfilled, funding has been cut, progress has been inadequate, or other reasons. The closeout process involves ensuring that appropriate records and results are archived, equipment is disposed of or returned, grant products are published where appropriate, all closeout certifications have been received by the agency, and final payment has been approved as appropriate. As part of the closeout process, the agency sends the grantee a completion notification and closeout certifications required from the grantee, possibly as blank forms, through the Federal Commons. The grantee must make the required certifications and send them, along with any other required information, back to the agency.

# Federal Grants Pilot Architecture

Initial Pilot



## 4.0 Operational Node Connectivity Description (ONCD)

### Product Guidance and Characteristics

The Operational Node Connectivity Description (ONCD) emphasizes the nodes or node types and the information exchanges between them. *Nodes* represent an element of the architecture that produces, consumes, or processes data. An *operational node* is a node that performs a role or a mission. *External Nodes* are operational nodes that send information to or receive information from the architecture's nodes but are outside the scope of the architecture itself; i.e., they do not perform the architecture activities. The activities from the Activity Model that are performed at each node are also shown. Information exchanges between nodes are collectively represented as *needlines*. Needlines simply indicate the need to transfer information from one node to another without specifying the path the information takes or the systems used. The information to be exchanged over the needlines is described in more detail in the Operational Information Exchange Matrix. As the activity model is being developed, an awareness of the nodes or node types and the information exchanges develops. The Operational Node Connectivity Description is developed from this awareness, then iteratively refined along with the Activity Model as activities are associated with the nodes and as the information exchanges become more evident. See *DoD Architecture Framework Version 1.0 DRAFT* Volume II: Product Descriptions.

### Product Discussion

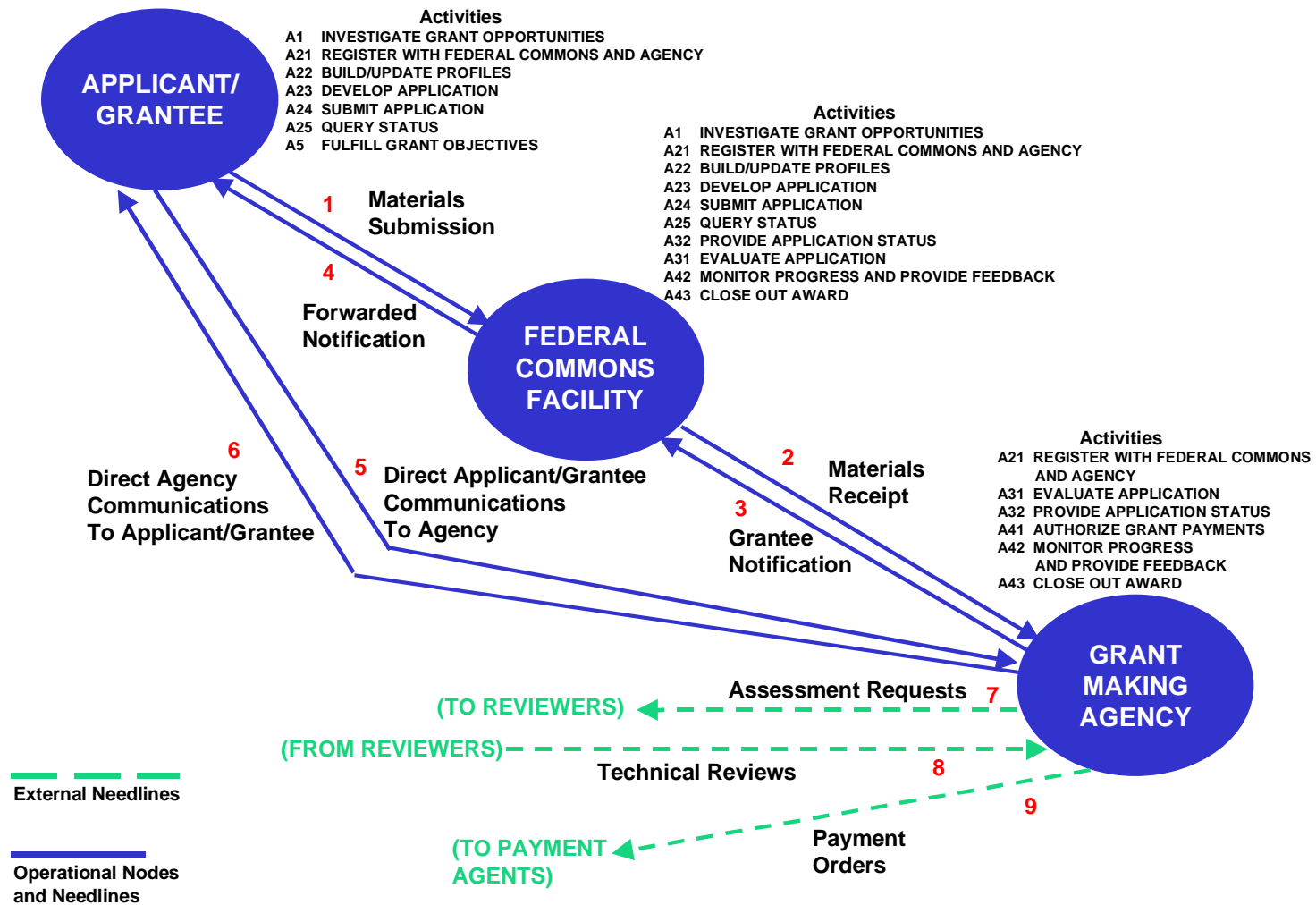
From the perspective of its human users - the applicants, grantees, and grant making agencies - there are three node types in the Federal Commons model.

- The *Applicant/Grantee* node type represents research institutions, universities, state and local governments, tribal governments, non-profits, small businesses and others. This is the group that applies for and may receive and report on federal grants.
- The *Grant Making Agency* node type represents the over 25 federal agencies that solicit grant applications, accept and review applications, make funding awards, and administer federal grants.
- The *Federal Commons Facility* node represents the Federal Commons facility and associated capabilities. It may be geographically located anywhere. It could be at a government facility or at a service provider.

The two sets of two-way exchanges - one between Applicant/Grantee and the Federal Commons and a second between the Federal Commons and Grant Making Agency - provide the links for electronic commerce. They carry the bulk of the data exchanged between applicants or grantees and agencies. Federal Commons translation and routing capabilities support the single point of contact concept for applicants and grantees envisioned to simplify grant application and reporting processes.

The direct two-way exchanges between Applicant/Grantee and Grant Making Agency allow for contacts that take place outside the scope of the Federal Commons such as establishing trusted relationships between parties.

Two additional needlines are shown attached to Grant Making Agency: one connects with Reviewers, one with Payment Agents, both external nodes outside the scope of the Federal Commons at this time. However, communications with both these parties could eventually be brought into the scope of the Federal Commons, so they are shown in the ONCD.



**OPERATIONAL NODE CONNECTIVITY DESCRIPTION  
FEDERAL GRANTS PILOT ARCHITECTURE**

2/15/2001

## 5.0 Operational Information Exchange Matrix

### Product Guidance and Characteristics

Information exchanges express the relationship across three basic entities (activities, operational nodes and their elements, and information flow) with a focus on specific aspects of the information flow. Information exchanges identify *who* exchanges *what* information with *whom*, *why* the information is necessary, and what degree of information exchange sophistication is required. The matrix describes relevant attributes of the exchange and keys the exchange to the producing and using activities and nodes and to the needline the exchange satisfies.

The specific attributes included are dependent on the objectives of the architecture effort, but may include the information media (e.g., data, voice, and video), quality (e.g., frequency, timeliness, and security), and quantity (e.g., volume and speed). Particular capabilities such as the security level of communications may also be captured for each exchange. The emphasis in this product is on the logical and operational characteristics of the information (e.g., what information is needed by whom, from whom, and when).

### Product Discussion

#### Assumptions

- No national security information will be transmitted through or be resident on the Federal Commons.
- Information Exchange 3a is marked as an assumption because each of the grant making agencies handles the establishment of a permanent, trusted relationship with an applicant or grantee based on its own procedures.
- Information Exchange 4b is marked as an assumption because it is not yet clear how application or other forms elements will be handled. The asterisks in row 4b are present to indicate column values that are based on the assumption that the forms are being filled in on-line, interactively at the Federal Commons.

#### Column Contents Definitions and Codes

- Size/Units: “Bounded” indicates that an upper bound on the size of the information exchange should exist, “small” indicates that the range is in the Megabytes; “Indeterminate” indicates that the upper bound cannot be calculated although an average size may be estimated.



- **Timeliness:** The values in this column (seconds, minutes, hours, days) indicate the response time for the information exchange required to make the exchange meaningful for the parties involved. Most of the exchanges in the Grants architecture, except for the interactive exchanges, are not highly time critical.
- **Privacy/Dissemination Controls:** C/P - confidential, contains privacy information (covered by Privacy Act); C/F - confidential, contains financial information (may also be covered by Privacy Act); C/I - confidential, contains information that may be proprietary (i.e., industrial or commercially sensitive information); C - confidential for other reasons
- **Authentication Required?:** “Yes” indicates that current documentation shows some degree of authentication is or will be performed; “No” indicates that no documentation or information regarding authentication has been found for the information exchange in question.
- **Threats:** These columns focus on the “what” of the threat, rather than the “who” or “how.” UA - unauthorized access; UM - unauthorized modification; L - loss or destruction; Umessage - unauthorized message or information exchange (i.e., either fraudulent or sent by a party without proper authority)

The following table shows the column headings that were used for this architecture. See the attached appended spreadsheet for the full Operational Information Exchange Matrix.

**Operational Information Exchange Matrix Column Headings**

Identifier of Needline Supported	Identifier of Infor- mation Exchange	Nature of Transaction					Triggering Event	Information Source		Information Destination	
		Content	Size /Units	Media	Colla bor- ative?	LI SI		Identifier of Producing Node	Identifier of Producing Activity	Identifier of Receivin g Node	Identifier of Receiving Activity

**Operational Information Exchange Matrix Column Headings (cont.)**

Performance Requirements				Information Assurance Attributes		Threats	
Frequency	Timeliness	Throughput	Other	Privacy/ Dissemi- nation Controls	Authenti- cation Required ?	Electronic (Hackers, etc.)	Other

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## 6.0 System Interface Description (SID)

### Product Guidance or Characteristics

This diagram helps link together the owner's perspective and designer's perspective by depicting the assignments of specific systems and their interfaces to the nodes and needlines described in the Operational Node Connectivity Description.

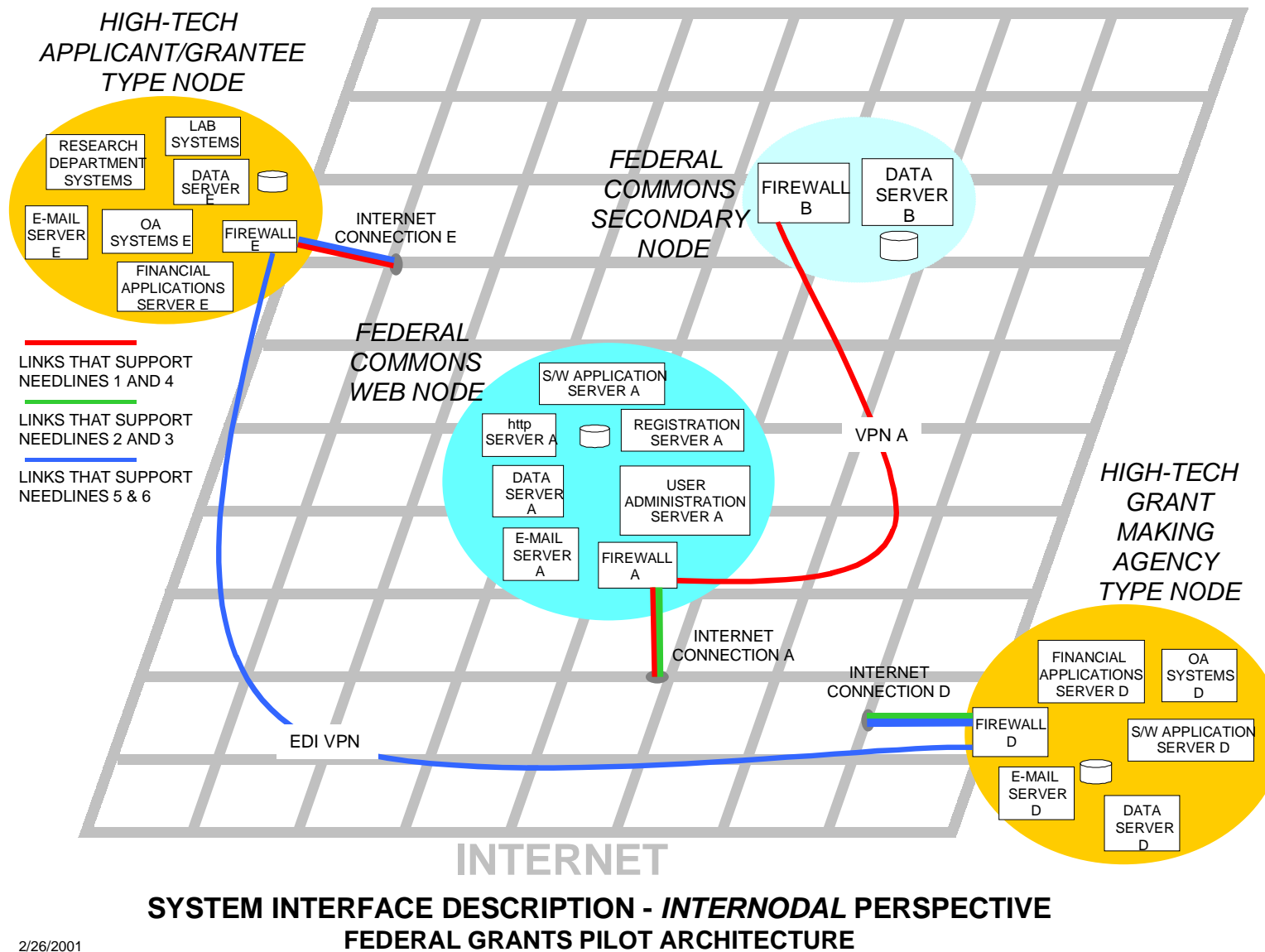
### Product Discussion

The Federal Commons System Interface Description (SID) shows systems nodes (ovals), systems resident at these nodes (rectangles within ovals), and links (lines) between systems at different nodes using both virtual private network (VPN) connections and internet connections. (The diagram does not show links between systems within the nodes.) The Internet is represented on the diagram by the background grid of pale, thick lines. The links that use the Internet attach to the grid. All the links are color coded to indicate the needlines they implement and the endpoints of interest for the links that include the Internet. That is, a connection to the Internet makes communications possible with every other system connected to the Internet. However, in this diagram, we are only concerned with the links to specific other systems or nodes as required to support Grants Administration.

The EDI VPN is in the diagram to document an existing type of connection that is widely used by university type nodes and that may remain in place for the indefinite future, even as Federal Commons capabilities evolve.

The systems nodes in this diagram are generic examples since there is a large range of possibilities for systems configurations at both the Applicant/Grantee and Grant Making Agency nodes and the specific requirements for the Federal Commons node(s) are still being developed. Examples of potential configurations for high technology Applicant/Grantee and Grant Making Agency configurations are illustrated in the diagram. There could be multiple systems nodes supporting both Applicant/Grantee and Grant Making Agency business activities for some Applicants/Grantees and some Grant Making Agencies. One possible multiple node configuration for Federal Commons is illustrated (Federal Commons Web Node and Federal Commons Supporting Node). Example low technology node configurations for Applicant/Grantee and Grant Making Agency nodes are TBD.

Open issues that remain for the SID include security and capacity (both communications bandwidth and storage) for the Federal Commons and the exact functional capabilities required for connection to the Federal Commons at the Grant Making Agency node.



2/26/2001

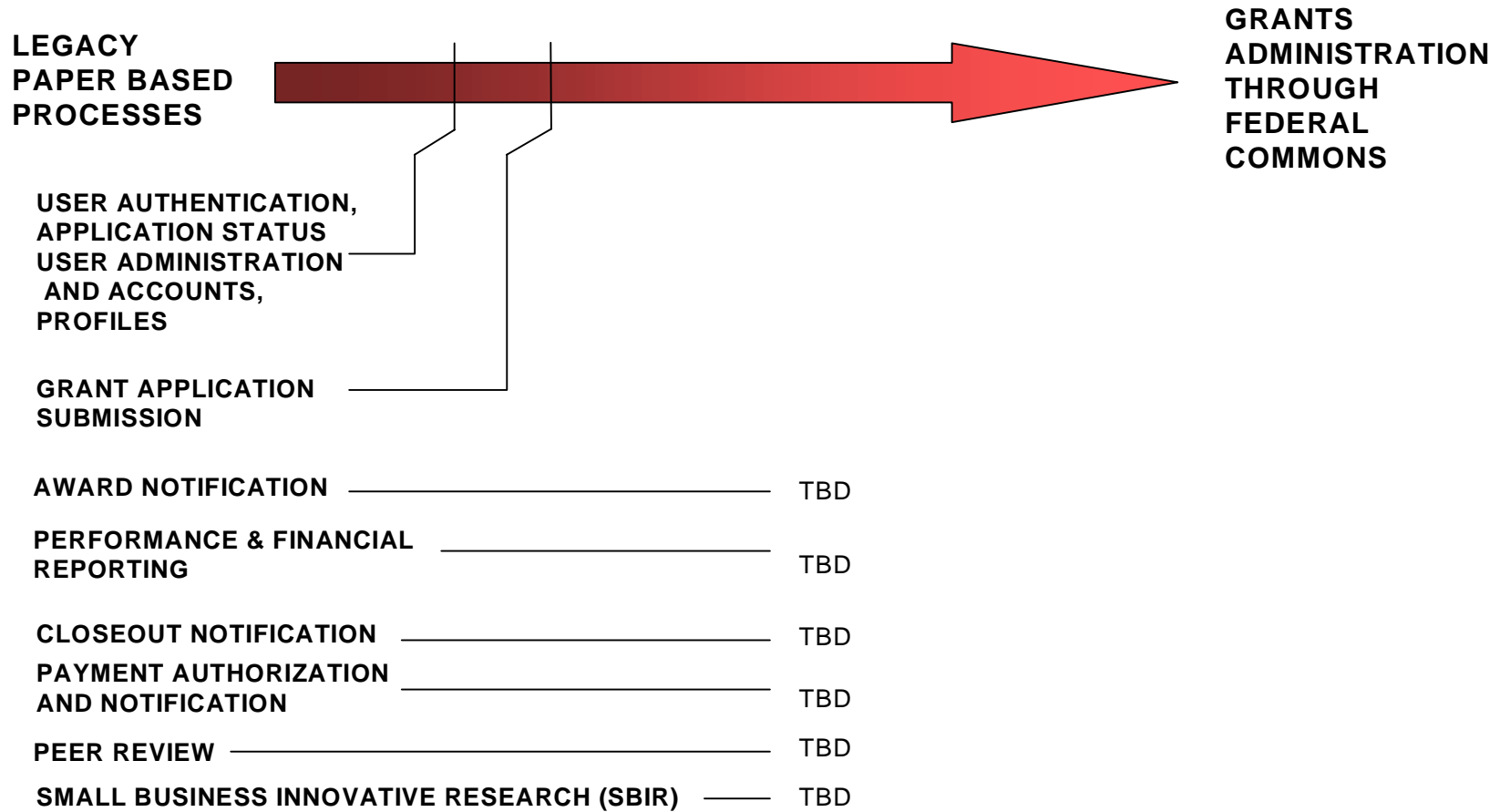
## **7.0 System Evolution Description (SED)**

### **Product Guidance and Characteristics**

The System Evolution Description depicts how a suite of systems will be ‘modernized’ over time, including evolution and/or migration steps to accommodate the specific information requirements, performance parameters, and technology forecasts provided in other products. A technology forecast is not included in this pilot architecture.

### **Product Discussion**

The Federal Commons is being developed by first doing a series of pilot projects. Pilots for registration, profile administration, and status queries are near completion. Pilots for state and local government application submission and research application submission are underway. Because there is no permanent funding for the Federal Commons and work is supported as funds are contributed, no definitive schedule has been set. The System Evolution Description indicates the likely order in which capabilities will be implemented, but does not indicate dates. The descriptions given in the data dictionary for these capabilities is one possibility that can be used until more definitive plans are available.



## System Evolution Description

### Federal Grants Pilot Architecture

2/23/2001

## 8.0 Technical Architecture Profile

### Product Discussion

The Technical Architecture Profile is focused on the standards needed for connectivity and interoperability with the Federal Commons. This draft represents an initial, minimal set of standards. Shaded entries indicate proposed or potential future services and standards. A short description and more detailed information on each standard can be found in the dictionary entry for that standard. Descriptions of the service areas and services can be found in the associated dictionary entries as well as a reference for the Technical Reference Model on which this Technical Architecture Profile is based. Examination of this set of standards raises the following types of questions:

- How will Federal Commons support potential users (either applicant/grantees or granting agencies) who only have e-mail access to the internet? For example, organizations that do not allow browser interfaces to the internet but will allow e-mail to outside parties. What additional standards may be needed to support these users?
- Of particular concern are potential users whose hardware or software base is old or out of date. How will security issues be addressed for users whose systems cannot handle Secure Socket Layer (SSL) or its successors? What about organizations whose equipment base is old and will not support TCP/IP but who can gateway from their older LAN equipment to the internet and thus support e-mail? In these and similar cases, a simple software upgrade will not solve the security problems.
- What additional security standards are needed and when will implementations of these standards be available?



**Technical Architecture Profile**  
**Federal Grants Pilot Architecture**

SERVICE AREA	SERVICE	STANDARD
Support Applications	Web Applications	Internet Explorer Version 4.X or better
		Netscape Version 3.X or better
Data Management	Business Data Standards	Data Universal Numbering System (DUNS)
		ZIP Code Directory
		Congressional District Identifier
		ISO 3166: ISO 3166-1 (1October 1997) and ISO 3166-2 (15 December 1998) (Codes for the Representation of Names of Countries and Their Subdivisions)
		U.S. State Codes and Territory Codes
		Catalogue for Federal Domestic Assistance Program
		Electronic Grants Data Elements
Data Interchange	Document Interchange	XML 1.0, W3C Recommendation, 10 February 1998, Rec-xml-19980210 (Extensible Markup Language)
		HTML 4.0 Specification, W3C Recommendation revised 24-apr-1998, Rec-html40-19980424 (Hypertext Markup Language)
		ANSI ASC X12 (Electronic Data Interchange)
Communications	World Wide Web Services	IETF RFC-2616 Hypertext Transfer Protocol – HTTP/1.1, June 1999
	Electronic Mail	IETF Standard 10/RFC-821/RFC-1869/RFC-1870 Simple Mail Transfer Protocol (SMTP) Service Extensions, November 1995
		IETF Standard 11/RFC-822/RFC-1049 Standard for the Format of ARPA Internet Text Messages, 13 August 1982
		IETF RFCs 2045-2049 Multipurpose Internet Mail Extensions (MIME), November 1996

**Technical Architecture Profile (cont.)**  
**Federal Grants Pilot Architecture**

<b>SERVICE AREA</b>	<b>SERVICE</b>	<b>STANDARD</b>
Communications (cont.)	Transport Services	IETF Standard 7/RFC-793 Transmission Control Protocol, September 1981
		IETF Standard 6/RFC-791/RFC-950/RFC-919/RFC-922/RFC-792/RFC-1112 Internet Protocol, September 1981
Distributed Computing	Object Services	Common Object Request Broker Architecture (CORBA) Version 2.3 Object Management Group (OMG) document formal/98-12-01, June 1999 (Proposed)
Security	Authentication	FIPS-PUB 112 Password Usage, 30 May 1985
	Security Algorithms	FIPS-PUB 186-1 Digital Signature Standard (DSS) Digital Signature Algorithm (DSA), December 1998 (Proposed)
	Web Security	Secure Sockets Layer (SSL) Protocol Version 3.0, Netscape, 18 November 1996
		IETF- RFC 2246 The Transport Layer Security (TLS) Protocol Version 1.0, January 1999 (Proposed)
		IETF-RFC 2467 SMTP Service Extension for Secure SMTP over TLS, January 1999 (Proposed)

## 9.0 Integrated Dictionary

### 9.1 Overview and Summary

Model Attribute	Model Attribute Values
Federal Grants Pilot Architecture Project	<i>Project Name:</i> Federal Grants Pilot Architecture <i>Architect:</i> MITRE Corporation <i>Project Purpose:</i> Test the use of DoD C4ISR products for the Federal Enterprise Architecture Framework (FEAF) <i>Assumptions and Constraints:</i> <i>Project Dates:</i> October 1, 2001 to March 15, 2001
Architecture	<i>Architecture Name:</i> Federal Grants Pilot Architecture <i>Date Completed:</i> TBD
Architecture View	As-Planned, Planner and Owner Views of FEAF's Data, Applications, and Technology Perspectives
Architecture Product	<i>Name:</i> <i>Product Type:</i> Overview and Summary Information <i>Timeframe:</i> As Planned <i>Hardcopy Location:</i> Contact George Brundage, Department of the Treasury <i>Softcopy Location:</i> TBD
Architecture Product	<i>Name:</i> <i>Product Type:</i> High-Level Operational Concept Description <i>Timeframe:</i> As Planned <i>Hardcopy Location:</i> Contact George Brundage, Department of the Treasury <i>Softcopy Location:</i> TBD
Architecture Product	<i>Name:</i> <i>Product Type:</i> Activity Model <i>Timeframe:</i> As Planned <i>Hardcopy Location:</i> Contact George Brundage, Department of the Treasury <i>Softcopy Location:</i> TBD
Architecture Product	<i>Name:</i>

	<i>Product Type:</i> Operational Node Connectivity Diagram <i>Timeframe:</i> As Planned <i>Hardcopy Location:</i> Contact George Brundage, Department of the Treasury <i>Softcopy Location:</i> TBD
Architecture Product	<i>Name:</i> <i>Product Type:</i> Operational Information Exchange Matrix <i>Timeframe:</i> As Planned <i>Hardcopy Location:</i> Contact George Brundage, Department of the Treasury <i>Softcopy Location:</i> TBD
Architecture Product	<i>Name:</i> <i>Product Type:</i> System Interface Description <i>Timeframe:</i> As Planned <i>Hardcopy Location:</i> Contact George Brundage, Department of the Treasury <i>Softcopy Location:</i> TBD
Architecture Product	<i>Name:</i> <i>Product Type:</i> Technical Architecture Profile <i>Timeframe:</i> As Planned <i>Hardcopy Location:</i> Contact George Brundage, Department of the Treasury <i>Softcopy Location:</i> TBD
Architecture Product	<i>Name:</i> <i>Product Type:</i> System Evolution Description <i>Timeframe:</i> As Planned <i>Hardcopy Location:</i> Contact George Brundage, Department of the Treasury <i>Softcopy Location:</i> TBD
Architecture Product	<i>Name:</i> <i>Product Type:</i> Integrated Dictionary <i>Timeframe:</i> As Planned <i>Hardcopy Location:</i> Contact George Brundage, Department of the Treasury <i>Softcopy Location:</i> TBD
Mission of Federal Commons	<i>Mission:</i> Provide single face of government to the grants community for grants administration <i>Authorization:</i> P.L. 107-106

Pilot Project Sponsor	<i>Sponsor:</i> Chief Information Officer (CIO) Council
Pilot Project Developer	<i>Company:</i> MITRE Corporation <i>Address:</i> 1820 Dolley Madison Blvd. , McLean, VA 22102
Federal Commons Oversight	Interagency Electronic Grants Committee (IAEGC)
Rules, Criteria, or Conventions	<i>Document Containing Information:</i> See the Overview and Summary product
Development Tool	<i>Tool Name:</i> Ptech FrameWork for Windows <i>Tool Vendor:</i> Ptech Inc. 160 Federal Street Boston, MA 02110 (617) 443-1170 <i>Tool Description:</i> TBD <i>Tool Output Format:</i> TBD
Analysis	<i>Analysis Process:</i> Manual <i>Analysis Technique:</i> TBD <i>Date Performed:</i> TBD <i>Products Used:</i> TBD <i>Document Containing Analysis Results:</i> TBD
Analysis Tool	<i>Tool Name:</i> TBD <i>Tool Vendor:</i> <i>Tool Description:</i> <i>Tool Output Format:</i>
Recommendations	<i>Document Containing Recommendations:</i> TBD <i>Document Location:</i>

## 9.2 High-Level Operational Concept Description

Model Attribute	Model Attribute Values
Communications Lines	<p><i>Name:</i> Federal Commons-Federal Agencies Information Flow Lines</p> <p><i>Description:</i> Secure communications between the Federal Commons and federal agencies that allow the electronic transfer of information</p> <p><i>Type:</i> TBD</p> <p><i>Media/Communication Type:</i> Digital</p> <p><i>“From” Box:</i> Federal Commons</p> <p><i>“To” Box:</i> Federal agencies</p>
Communications Lines	<p><i>Name:</i> Grant Applicants and Grantees-Federal Commons Communications Lines</p> <p><i>Description:</i> Secure communications lines between Applicants or Grantees and the Federal Commons that allow the electronic transfer of information</p> <p><i>Type:</i> Logical</p> <p><i>Media/Communication Type:</i> Digital</p> <p><i>“From” Box:</i> Applicant/Grantee</p> <p><i>“To” Box:</i> Federal Commons</p>
Asset Icon: Federal Agencies	<p><i>Name:</i> The names of participating federal agencies are shown in the appendix of the Overview and Summary product</p> <p><i>Description:</i> Federal agency which provides grant funding</p> <p><i>Location:</i> Geographically disbursed throughout the U.S. with concentration in Washington, D.C.</p> <p><i>Role/Responsibility:</i> Solicit for, award, and administer grants consistent with federal rules and regulations</p>
Asset Icon: Federal Commons	<p><i>Asset Name:</i> Federal Commons</p> <p><i>Asset Type:</i> Facility</p> <p><i>Description:</i> Federal Commons facility and associated capabilities used to support grant administration as common face of government to public grants community</p> <p><i>Location:</i> Government facility or value added provider facility, U.S.</p>
Asset Icon: Grant Applicants	<p><i>Description:</i> Individuals or organizations who apply for federal grants to one or more of the participating federal agencies</p> <p><i>Location:</i> Geographically dispersed</p>

	<i>Role/Responsibilities:</i> Apply for federal grants to participating agencies in accordance with federal rules and regulations and agency procedures
Asset Icon: Grantees	<i>Description:</i> Individuals or organizations who receive federal grants from participating federal agencies

### 9.3 Activity Model

#### Model

Model Attribute	Model Attribute Values
Name	Federal Grants Pilot Architecture: Administer Grants
Type	IDEF0 style model
Purpose	Document “As-Planned” business context for grant administration-related functions of the Federal Commons. Model will be part of a proposed Federal Segment architecture for Grants. The model has been developed as part of a pilot effort to test the effectiveness using DoD C4ISR Architecture Framework products to document Federal Segment architectures.
Viewpoint	Includes Applicant/Grantee and Grant Making Agency activities related to grant administration

#### Activities

Activity Name	Activity Description
Administer Grants	The Administer Grants activity models the business context in which the Federal Commons operates. The Federal Commons provides a common face of government to the applicant and grantee community for grant administration. Grant administration includes completing and submitting applications, making award notifications, and monitoring grants. Applicants and grantees include universities, research institutions, state and local governments, tribal governments, non-profits, and small businesses. The current scope of the Federal Commons supports secure transmission of pre and post award information; registration, translation, and routing services that allow the user secure access to all participating agencies with a single government login; and creation and maintenance of organizational and professional staff profiles to facilitate the submission of such information to agencies as part of the grant administration process. The preparation and publication of solicitations as well as publication and archiving of grant products are out of the scope of the model. Possible future functions of the Federal Commons include more involvement in peer review, payment system integration, and general information exchange.
Apply for Grant	Applicants select solicitations for which they wish to apply. Potential applicants register with the



	Federal Commons and grant making agencies, provide organizational and professional profiles of certifications and/or accomplishments, develop grant applications using application form elements available through the Federal Commons, submit them to the grant making agency, and query grant making agencies on the status of submitted applications through the Federal Commons.
Authorize Grant Payments	The grant-making agency authorizes grant payments to the grantee based on the terms and conditions of the grant. The grant award may be made in one or more payments. Payments may depend on satisfactory progress in fulfilling the objectives of the grant. The actual payments are made by one of three government payment agents: HHS (Payment Management System (PMS)), Treasury (Automated Standard Applications for Payments (ASAP)), or, for DoD grants, the DoD (Defense Procurement Payment System). The grant-making agency sends a notification authorizing payment to the identified payment agent. The agency also a notification of the pending payment to the grantee through the Federal Commons.
Build/Update Profiles	The Federal Commons generates a skeleton profile for an organization or user when their account is created. An organization completes or updates its profile with such information as its tax identification number, business type, and assurances and certifications for federal lobbying regulations, Drug-Free Workplace Act, Federal Regulations Regarding Research Misconduct, etc. The user, normally a professional affiliated with an organization, maintains a profile including race, disabilities, biographical information, honors, degrees, etc. Agencies can request organization and professional profiles from the Federal Commons.
Close Out Award	A grant making agency can decide to end a grant because its objectives have been satisfactorily fulfilled, funding has been cut, progress has been inadequate, or other reasons. The closeout process involves ensuring that appropriate records and results are archived, equipment disposed of or returned, grant products published where appropriate, all closeout certifications have been received by the agency, and final payment has been approved as appropriate. As part of the closeout process, the agency sends the grantee a completion notification and closeout certifications required from the grantee, possibly as blank forms, through the Federal Commons. The grantee must make the required certifications and send them, along with any other required information, back to the agency.
Develop Application	To apply for a specific grant, applicants develop their applications using form(s) available through the Federal Commons. They can complete these forms and save work in progress on the Federal Commons if desired, or download the forms to their own system and complete the form on their equipment. During the application development process, the applicant may have questions for the

	agency and may receive answers to these questions from the agency. During the agency application review and evaluation process, the applicant may receive questions from the agency requesting further information regarding his or her application. The applicant may develop additional materials or make required changes to the application in response to the agency's questions or for other valid reasons and resubmit the application.
Evaluate Application	Prior to receiving a grant application, an agency may receive questions from potential applicants and provide answers to those questions. These questions and answers are dealt with outside the Federal Commons at this time. Once grant applications are received by a grant-making agency, the agency may perform reviews of the applications. This process is based on procedures and criteria established by the agency in the solicitation package. The agency review process may involve reviewers from outside the agency, who typically provide objective reviews of the technical portion of the application. Transmission and receipt of review materials to and from outside reviewers are outside the scope of the Federal Commons at this time. During the review, the agency may pose questions or request additional information from the applicant. Such questions are dealt with outside the Federal Commons at this time. The agency notifies grant winners through the Federal Commons, providing the terms and conditions of the grant which constitute the contract with the award notification.
Fulfill Grant Objectives	Once an award is received, the grantee performs work or otherwise fulfills the objectives of the grant as specified in the award notification terms and conditions. The grantee may submit progress reports, financial reports, interim products, final reports and deliverables, and/or invention reporting to its grant making agency through the Federal Commons based on the terms and conditions of the grant. The grantee may receive payment authorization notifications and feedback from the agency through the Federal Commons. When the grant is fulfilled or otherwise terminated, the grantee performs closeout activities as required and can receive and submit closeout information through the Federal Commons.
Investigate Grant Opportunities	Potential applicants review published grant solicitations through the FedBizOpps web site, agency web sites, or other sources and select one or more for which they wish to apply. The only Federal Commons support for this activity is a link to the FedBizOpps web site for exploration of opportunities.
Monitor Progress and Provide Feedback	The grant-making agency monitors progress of the grant based on the terms and conditions of the grant. Monitoring includes reviewing financial, performance, and invention reporting from the grantee. The monitoring process may involve reviewers from outside the agency, who typically

	provide objective reviews of the technical portion of progress reports and products produced by the grantee. Approved grant products, such as reports, may be published on Federal web-sites or other publicly available sources, but not on the Federal Commons. Feedback may be provided to the grantee such as additional detailed direction or modified objectives for the grant. In some cases, payment may be based on satisfactory progress. When the requirements of the grant have been satisfactorily fulfilled or the agency decides to terminate the grant for some other reason, e.g., loss of funding, lack of progress, the agency issues a completion notice to the grantee so that award close out procedures can be started.
Provide Application Status	As an application moved through the evaluation process, the grant-making agency provides organizations and users status information on their application(s) through the Federal Commons from an agency data store when requested. The agency determines the detail to be provided. Typically, status might include such items as the date peer review began, program officer contact information, and the current status of the application (i.e., Awarded, Recommended, Pending, Withdrawn, Declined, or Inappropriate/Ineligible). Status of a particular application is provided only to the relevant user (PI applicant) or the AOR or AA for the submitting organization.
Provide Post-Award Administration	A grant-making agency monitors progress and may provide feedback on each of its grants based on the negotiated work and terms and conditions of the grant. The agency assesses progress from technical and financial reports, reviews, and/or delivery of interim and final products. Reviews may involve outside (i.e., non-agency) parties. The agency authorizes payment to the grantee based on the terms and conditions of the grant. The agency also performs award closeout procedures when a grant is satisfactorily completed or when it is terminated due to funding problems, lack of progress, or other reasons. The Federal Commons provides support for transmitting reports and products from grantees to agencies, feedback from agencies to grantees, payment notifications to grantees, and exchanging closeout information.
Query Status	After an organization has submitted one or more grant applications to grant making agenc(ies), an AOR, AA, or user can query the status of the application(s) through the Federal Commons. An authorized user can query the status of only his or her own application(s). An AOR or AA can query the status of any proposal submitted from his or her organization. The user will receive the tracking numbers, titles, status, and agency-specific detail information for each application in his query. The status could indicate Awarded, Recommended, Pending, Withdrawn, Declined, or Inappropriate/Ineligible.

Register With Federal Commons and Agency	Organizations applying for grants register with the Federal Commons to identify an Authorized Organizational Representative (AOR) and possibly an Accounts Administrator (AA), to develop organizational profiles, to create user accounts for their affiliates, and to identify agencies to receive registration information. Organizations and individual users must be registered with the Federal Commons before they can complete a profile or query the status of an application. The Federal Commons authorizes a <i>provisional registration</i> when an organization registers with the Federal Commons. Organizations must also register with one or more agencies and establish a <i>trusted relationship</i> with those agenc(ies). Agencies determine when in the grant application and award process, e.g., before application, before award, or after award, an organization must have a trusted relationship with them. Agencies also define their own procedures for establishing the trusted relationship and what information they require to establish the trusted relationship beyond that required to register with the Federal Commons. The mechanics of establishing the trusted relationship is outside the scope of the Federal Commons, but when an agency establishes a trusted relationship with an organization, the agency notifies the Federal Commons of the relationship and the Federal Commons records it as a <i>permanent registration</i> .
Select Awards	The grant making agency evaluates applications submitted in response to a specific solicitation using its own agency procedures and makes zero or more awards based on the merits of the applications and the amount of funds available. During the evaluation period, the agency answers application status information requests from Authorized Organizational Representatives (AORs), Account Administrators (AAs), or Principal Investigators (PIs) through the Federal Commons on request.
Submit Application	Applicants have their draft application reviewed and approved following the internal procedures of their organization. The Authorized Organizational Representative (AOR) then submits the completed and approved application through the Federal Commons. If, during the review process, additional information or revisions to an application need to be submitted to the federal agency, the additional information or revisions may also need to be approved by the applicant organization prior to re-submission.

**Box Connectors (Inputs, Outputs, Controls, and Mechanisms)**

<b>Box Connector Name</b>	<b>Other Attributes</b>
Agency Funding	<i>Description:</i> Grant making agency funding; budget for grants <i>Type:</i> Control <i>Source:</i> External <i>Destination:</i> Evaluate Application, Authorize Grant Payments
Agency Personnel	<i>Description:</i> Personnel from a grant making agency who award and administer grants for that agency <i>Type:</i> Mechanism <i>Destination:</i> Register with Federal Commons and Agency, Evaluate Application, Provide Post-Award Administration (Authorize Grant Payments, Monitor Progress and Provide Feedback, Close Out Award) <i>Resource Type:</i> Role <i>Organization:</i> Federal Grant Making Agencies
Agency Solicitation Package	<i>Description:</i> Grant solicitation package prepared by grant making agency; contains solicitation to be published (including Terms and Conditions) plus additional materials, including detailed evaluation process and criteria, that will not be made public <i>Type:</i> Control <i>Source:</i> External <i>Destination:</i> Select Awards
Agency Systems	<i>Description:</i> A subtype of Automated Systems that refers to the automated systems used by the grant making agencies in grant administration. These will typically be web browsers and office automation systems <i>Type:</i> Mechanism <i>Destination:</i> Select Awards, Monitor Progress and Provide Feedback
Answers from Agency	<i>Description:</i> Answers from the grant making agency to formal questions about the solicitation that are submitted by the applicants to the agency prior to the deadline for submitting applications. Note that these answers are not transmitted through the Federal Commons at this time. <i>Type:</i> Input <i>Source:</i> Evaluate Application <i>Destination:</i> Develop Application

Applicant Funding	<p><i>Description:</i> Funding for work to develop grant application and possibly applicant, e.g., state or local government, contribution to grant project; often part of applicant organization budget or overhead; may include matching funds</p> <p><i>Type:</i> Control</p> <p><i>Source:</i> External</p> <p><i>Destination:</i> Investigate Grant Opportunities, Register with Federal Commons and Agency, Build/Update Profiles, Develop Application, Submit Application, Fulfill Grant Objectives</p>
Applicants	<p><i>Description:</i> Organizations and Principal Investigators (PIs) who are in the process of applying or who have applied for grants but have not yet received a grant. This is a subset of Applicants and Grantees.</p> <p><i>Type:</i> Mechanism</p> <p><i>Destination:</i> Apply for Grant, Investigate Grant Opportunities</p>
Applicants and Grantees	<p><i>Description:</i> Organizations and Principal Investigators that apply for grants (Applicants) and receive grants (Grantees) from federal grant making agencies</p> <p><i>Type:</i> Mechanism</p> <p><i>Destination:</i> Apply for Grants, Investigate Grant Opportunities, Fulfill Grant Objectives</p> <p><i>Resource Type:</i> Role</p> <p><i>Organization:</i> Multiple (Research Related; State, Local, Non-Profit, and Other)</p>
Applicant Systems	<p><i>Description:</i> A subtype of Automated Systems that refers to the automated systems used by the grant applicants. These will typically be web browsers and office automation systems</p> <p><i>Type:</i> Mechanism</p> <p><i>Destination:</i> Apply for Grant</p>
Application Status	<p><i>Description:</i> Status of a grant application during the application evaluation process</p> <p><i>Type:</i> Control</p> <p><i>Source:</i> Provide Application Status</p> <p><i>Destination:</i> Query Status</p>
Archived Records and Results	<p><i>Description:</i> Relevant records and results (e.g., agency review results, reports, and products) of a grant that need to be archived for future reference. These materials are substantially different from Published Grant Products, but may include some of them. Note that these materials are not archived on the Federal Commons.</p> <p><i>Type:</i> Output</p>

	<i>Source:</i> Close Out Award <i>Destination:</i> External
Authorization for Payment	<i>Description:</i> Authorization to HHS, Treasury, or DoD payment system to make payment to grantee <i>Type:</i> Output <i>Source:</i> Authorize Grant Payments <i>Destination:</i> External
Automated Systems	<i>Description:</i> Computer systems involved in the federal grant solicitation, application, evaluation, and administration process; includes Federal Commons, agency systems, and applicant/grantee systems <i>Type:</i> Mechanism <i>Destination:</i> All activities <i>Resource Type:</i> System <i>System:</i> Multiple – including Federal Commons, applicant and agency local systems, and grantee systems used in fulfilling grant objectives
Award Notification	<i>Description:</i> Formal notification that a grant has been awarded to a grantee, includes terms and conditions and constitutes the contract <i>Type:</i> Output <i>Source:</i> Evaluate Application <i>Destination:</i> External <i>Type:</i> Control <i>Source:</i> Evaluate Application <i>Destination:</i> Provide Post-Award Administration (Authorize Grant Payments, Monitor Progress and Provide Feedback, Close Out Award), Fulfill Grant Objectives
Close Out Certifications and Information	<i>Description:</i> Equipment return verification, software license return, and other certifications and information completed by the grantee and needed by the grant making agency at the closeout of a grant <i>Type:</i> Output <i>Source:</i> Fulfill Grant Objectives <i>Destination:</i> Close Out Award
Completed Application	<i>Description:</i> The completed application information prior to being submitted through the Federal Commons to a grant making agency (for solicitation specific information). Parts of this information may be reviewed and approved internally by the applicant organization prior to being submitted.

	<i>Type:</i> Input <i>Source:</i> Develop Application <i>Destination:</i> Submit Application
Completion Notification	<i>Description:</i> Notification that the grant has either been successfully completed or that it is being terminated for other reasons <i>Type:</i> Input <i>Source:</i> Monitor Progress and Provide Feedback <i>Destination:</i> Close Out Award; Fulfill Grant Objectives
Federal Commons	<i>Description:</i> The automated capabilities residing at the Federal Commons Facility that serve as a secure pipeline and translator to provide a single face of government to the grants community for grant application and administration. Federal Commons is a subtype of Automated Systems <i>Type:</i> Mechanism <i>Destination:</i> Apply for Grant, Select Awards, Provide Post-Award Administration (Authorize Grant Payments, Monitor Progress and Provide Feedback, Close Out Award)
Feedback	<i>Description:</i> Results of progress reviews performed by grant making agency which are sent back to grantee; may provide direction to grantee <i>Type:</i> Input <i>Source:</i> Monitor Progress and Provide Feedback <i>Destination:</i> Fulfill Grant Objectives
Final Payment Approval	<i>Description:</i> A final grant payment may be needed to close out an award. If so, it is requested as part of the close out process. <i>Type:</i> Input <i>Source:</i> Close Out Award <i>Destination:</i> Authorize Grant Payments
Form Elements	<i>Description:</i> The form(s) or parts of forms to be used by applicants to supply application information for all federal grants submitted through the Federal Commons. <i>Type:</i> Input <i>Source:</i> TBD <i>Destination:</i> Develop Application
Grantees	<i>Description:</i> Organizations and principal investigators who have received a grant award; a subset of Applicants and Grantees



	<i>Type:</i> Mechanism <i>Destination:</i> Fulfill Grant Objectives
Notification of Pending Payment	<i>Description:</i> Notification to grantee that grant payment has been authorized and should be forthcoming <i>Type:</i> Input <i>Source:</i> Authorize Grant Payments <i>Destination:</i> Fulfill Grant Objectives
Payment	<i>Description:</i> Grant payment to grantee - issued by HHS, Treasury, or DoD <i>Type:</i> Control <i>Source:</i> External <i>Destination:</i> Fulfill Grant Objectives
Payment Approval	<i>Description:</i> Approval for payment <i>Type:</i> Input <i>Source:</i> Monitor Progress and Provide Feedback <i>Destination:</i> Authorize Grant Payments
Profiles	<i>Description:</i> Profiles contain contact, compliance, and/or accomplishments of a grantee organization or user. There are two types of profiles. An Organizational Profile contains contact information, type of business, authorized representative, and legislative compliance information for an applicant organization. A Professional Profile contains contact, personal attributes, degrees, honors, employment history, etc. for a professional user likely to apply for a grant. <i>Type:</i> Output <i>Source:</i> Build/Update Profiles <i>Destination:</i> Evaluate Application
Provisional/Permanent Registration	<i>Description:</i> Applicant organizations and users must be known to the Federal Commons and grant making agencies to exchange confidential or business critical information. Organizations and users register with the Federal Commons to create profiles. An organization registered only with the Federal Commons is assigned a <i>Provisional Registration</i> by the Federal Commons. For other business activities, organizations and users establish a trusted relationship with one or more agencies. Each agency determines its own grant cycle timing and procedures to establish this relationship. When the agency notifies the Federal Commons of the existence of a <i>trusted relationship</i> between the agency and an organization, the Federal Commons records the relationship as a <i>Permanent</i>

	<p><i>Registration.</i> The trusted relationship supports a channel for confidential business activities.</p> <p><i>Type:</i> Control</p> <p><i>Source:</i> Register with Federal Commons and Agency</p> <p><i>Destination:</i> Build/Update Profiles, Develop Application, Submit Application, Query Status, Provide Post-Award Administration (Authorize Grant Payments, Monitor Progress and Provide Feedback, Close Out Award), Fulfill Grant Objectives</p>
Published Grant Products	<p><i>Description:</i> Products produced under the grant that are made available through government web-sites or other publication channels. Note that these products are not published on the Federal Commons.</p> <p><i>Type:</i> Output</p> <p><i>Source:</i> Monitor Progress and Provide Feedback, Close Out Award</p> <p><i>Destination:</i> External</p>
Published Solicitations	<p><i>Description:</i> Publicly available portions of Agency Solicitation Packages</p> <p><i>Type:</i> Input</p> <p><i>Source:</i> External</p> <p><i>Destination:</i> Investigate Grant Opportunities</p>
Questions for Applicant	<p><i>Description:</i> Questions generated for an applicant by the grant-making agency during the application evaluation process. These questions are not transmitted to the applicant through the Federal Commons at this time. Answers to these questions may be made to the agency through the Federal Commons if they are in the form of submission of additional application information or an entire updated application, but otherwise are not transmitted through the Federal Commons.</p> <p><i>Type:</i> Input</p> <p><i>Source:</i> Evaluate Application</p> <p><i>Destination:</i> Develop Application</p>
Questions for Agency	<p><i>Description:</i> Questions generated for the grant-making agency by the applicant during the application development process. Note that these questions are not transmitted through the Federal Commons at this time.</p> <p><i>Type:</i> Input</p> <p><i>Source:</i> Develop Application</p> <p><i>Destination:</i> Evaluate Application</p>
Reviewers	<p><i>Description:</i> Non-grant making agency personnel qualified to provide objective technical review of grant applications or grant progress reports and products</p>

	<i>Type:</i> Mechanism <i>Destination:</i> Evaluate Application, Monitor Progress and Provide Feedback <i>Resource Type:</i> Role <i>Organization:</i> Multiple
Reports and Products	<i>Description:</i> Progress reports and products (interim and final) produced by the grantee as required by the grant terms and conditions and the winning application <i>Type:</i> Input <i>Source:</i> Fulfill Grant Objectives <i>Destination:</i> Monitor Progress and Provide Feedback
Rules and Regulations	<i>Description:</i> Government legislation, regulations, and rules that govern the federal grant process (e.g., soliciting for grants, applying for grants, satisfying the terms and conditions of grants) <i>Type:</i> Control <i>Source:</i> External <i>Destination:</i> All activities except Investigate Grant Opportunities and Query Status
Selected Solicitation	<i>Description:</i> The published solicitation that an applicant has selected and to which the applicant plans to make a response in the form of a grant application <i>Type:</i> Input <i>Source:</i> Investigate Grant Opportunities <i>Destination:</i> Develop Application
Status Query	<i>Description:</i> A query from the applicant organization or professional user, e.g., Principal Investigator (PI), to the grant making agency for the status of their application while the application is being evaluated. <i>Type:</i> Input <i>Source:</i> Query Status <i>Destination:</i> Provide Application Status
Status Update	<i>Description:</i> Periodic evaluation process status update per application that is stored by the grant making agency in electronic form available to the Federal Commons <i>Type:</i> Input <i>Source:</i> Evaluate Application <i>Destination:</i> Provide Application Status
Submitted Application	<i>Description:</i> Formal grant application developed by an applicant using form elements available

	<p>through the Federal Commons and submitted through the Federal Commons to a grant making agency</p> <p><i>Type:</i> Input</p> <p><i>Source:</i> Submit Application</p> <p><i>Destination:</i> Evaluate Application</p> <p><i>Type:</i> Control</p> <p><i>Source:</i> Submit Application</p> <p><i>Destination:</i> Query Status</p>
Terms and Conditions	<p><i>Description:</i> The terms and conditions that define the specific contractual requirements of the grant</p> <p><i>Type:</i> Control</p> <p><i>Source:</i> External</p> <p><i>Destination:</i> Develop Application, Submit Application, Provide Post-Award Administration, Fulfill Grant Objectives</p>

## 9.4 Operational Node Connectivity Diagram

### Operational Nodes

Operational Node Name	Attributes
Applicant/Grantee	<p><i>Description:</i> This node represents the organizations and individual users who apply for and receive grants</p> <p><i>Location:</i> Multiple</p> <p><i>Associated Activities:</i> Investigate Grant Opportunities, Register with Federal Commons and Agency, Build/Update Profiles, Develop Application, Submit Application, Query Status, Fulfill Grant Objectives</p>
Federal Commons Facility	<p><i>Description:</i> This node is the facility where the Federal Commons portal server will reside. This facility is expected to evolve into the single public access portal for the public and federal grant making agencies to administer grants.</p> <p><i>Location:</i> GSA or provider</p> <p><i>Associated Activities:</i> Investigate Grant Opportunities, Register with Federal Commons and Agency, Build/Update Profiles, Develop Application, Submit Application, Query Status, Provide Application Status, Evaluate Application, Authorize Grant Payments, Monitor Progress and Provide Feedback, Close Out Award</p>
Grant Making Agency	<p><i>Description:</i> This node represents the over 25 federal agencies who will award and administer grants through the Federal Commons. See the Appendix of the Overview and Summary for a list of these agencies.</p> <p><i>Location:</i> Multiple</p> <p><i>Associated Activities:</i> Register with Federal Commons and with Agency, Evaluate Application, Provide Application Status, Authorize Grant Payments, Monitor Progress and Provide Feedback, Close Out Award</p>

## Needlines

Needline Identifier	Other Needline Attributes
<b>(7) Assessment Requests</b> (Grant Making Agency to Reviewers/External)	<i>Description:</i> When appropriate, a Grant Making Agency will send the technical parts of grant applications or technical progress reports, interim technical products, or final technical reports and products submitted by grantees to a set of outside reviewers for technical review. <i>“From” Operational Node:</i> Grant Making Agency <i>“To” Operational Node:</i> External (Reviewers)
<b>(6) Direct Agency Communications to Applicant/Grantee</b> (Grant Making Agency to Applicant/Grantee)	<i>Description:</i> Grant Making Agencies establish trusted relationships, send questions to applicants about their submitted applications, and send answers to questions submitted by applicants about grant solicitations. <i>“From” Operational Node:</i> Grant Making Agency <i>“To” Operational Node:</i> Applicant/Grantee
<b>(5) Direct Applicant/Grantee Communications to Agency</b> (Applicant/Grantee to Grant Making Agency)	<i>Description:</i> Applicants or Grantees contact a Grant Making Agency to establish a trusted relationship with the agency. Applicants send questions to granting agencies about grant solicitations. <i>“From” Operational Node:</i> Applicant/Grantee <i>“To” Operational Node:</i> Grant Making Agency
<b>(4) Forwarded Notification</b> (Federal Commons Facility to Applicant/Grantee)	<i>Description:</i> An applicants can develop his or her grant applications on the Federal Commons or download electronic forms and complete them on his or her own equipment. The Federal Commons returns agency replies to applicant queries about application status for submitted applications. The Grantee receives award notices, payment notices, grant completion notices, and feedback on submitted progress reports or submitted products through the Federal Commons. <i>“From” Operational Node:</i> Federal Commons Facility <i>“To” Operational Node:</i> Applicant/Grantee
<b>(3) Grantee Notification</b> (Grant Making Agency to Federal Commons Facility)	<i>Description:</i> The grant making agency sends requests for organizational or professional profiles, status updates on submitted grant applications, and grant award notifications for applicants through the Federal Commons. Payment notices, feedback from grant progress reviews, and grant completion notices for the Applicant/Grantee may also be sent through the Federal Commons <i>“From” Operational Node:</i> Grant Making Agency <i>“To” Operational Node:</i> Federal Commons Facility

<b>(2) Materials Receipt</b> (Federal Commons Facility to Grant Making Agency)	<i>Description:</i> The Federal Commons Facility sends requests for registration, notices of organizational or professional profile changes, profiles, grant applications, and application status queries to the Grant Making Agency. Grant progress reports, interim and final products, final reports, and closeout certifications will also be sent to the Grant Making Agency. <i>“From” Operational Node:</i> Federal Commons Facility <i>“To” Operational Node:</i> Grant Making Agency
<b>(1) Materials Submission</b> (Applicant/Grantee to Federal Commons Facility)	<i>Description:</i> A potential applicant may access published solicitations by first accessing the Federal Commons and then transferring to the FedBizOpps web site capability. Organizational applicants register with the Federal Commons and request permanent registration with Grant Making Agencies. The process for granting a permanent organizational registration involves the agency performing due diligence and is conducted outside the Federal Commons, i.e., through Direct Agency Communications to Applicant/Grantee and Direct Applicant/Grantee Communications to Agency. Once an organization is registered with the Federal Commons, the organization can create user accounts for their professionals and maintain organizational and professional profiles. Applicants develop and submit their grant application forms through the Federal Commons. Applicants can also query the status of their application submitted through the Federal Commons and receive award notices. Once awarded, grantees will submit progress reports, any electronic products, final grant reports, and closeout certifications through the Federal Commons. <i>“From” Operational Node:</i> Applicant/Grantee <i>“To” Operational Node:</i> Federal Commons Facility
<b>(9) Payment Orders</b> (Grant Making Agency to Payment Agents)	<i>Description:</i> The Grant Making Agency sends an authorization for payment to a grantee to the Payment Agent, either HHS or Treasury, or, for DoD grants, the DoD. The Payment Agent will actually cut the check or make the electronic funds transfer. <i>“From” Operational Node:</i> Grant Making Agency <i>“To” Operational Node:</i> External (Payment Agents)
<b>(8) Technical Reviews</b> (Reviewers/External to Grant Making Agency)	<i>Description:</i> Outside reviewers will send technical reviews of applications, grant progress reports, products, or final grant reports back to the Grant Making Agency that requested the review. <i>“From” Operational Node:</i> External (Reviewers) <i>“To” Operational Node:</i> Grant Making Agency

## 9.5 Operational Information Exchange Matrix

### Column Contents

Identifier	Description
Information Exchange Identifier	<p><i>Definition:</i> A two character unique identifier given to each information exchange to allow easy reference to it. The first character is the number of the needline over which the information is exchanged. The second character is a letter where the letters are assigned sequentially by the order of the information exchange within the matrix. The matrix is arranged by needline, then sequence of the exchange over the needline in a ‘big picture’ story of how applicant and grant making agency handle grant application, award, and post award administration.</p> <p><i>Example Contents:</i> 3c</p>
Size/Units	<p><i>Definition:</i> A rough estimate of the size the information to be exchanged. <i>Bounded</i> indicates that an upper bound on the size of the information exchanged should exist. <i>Small</i> indicates the range of information to be exchanges is probably not significantly above 1 Megabyte, but no firm requirement has been established at this time. <i>Indeterminate</i> indicates that no upper bound has been established at this time or an upper bound may not be possible to compute, and the information is likely to be larger than one megabyte. In cases where it is not possible to compute an upper bound, it may be possible to compute an average size.</p>
Media:	<p><i>Definition:</i> The means or agent that will be used to transfer information. <i>Data</i> implies the information will be exchanged electronically.</p> <p><i>Example Contents:</i> Data, Paper, Phone, FAX</p>
Collaborative?	<p><i>Definition:</i> An information exchange is <i>collaborative</i> if it takes place in an interactive session such as a web session in which the user is completing a web form where a two way information exchange (involving two needlines) is implied. This type of exchange implies that a response time adequate to support human interaction is required. An information exchange is identified as <i>Supports Collaborative (SC)</i> if it is a back end query or response to or from another system and that query/response will be used in a collaborative session.</p> <p><i>Example Contents:</i> Yes, No, SC</p>
LISI	<p><i>Definition:</i> Levels of Information Systems Interoperability (LISI) – a level indicating the degree of sophistication required to accomplish interaction between information systems. See DoD C4ISR Architecture</p>



	Framework Version 2.0 Appendix D for further information <i>Example Contents:</i> 0 (Isolated), 1 (Connected), 2 ( Functional), 3 (Domain), 4 (Enterprise)
Frequency	<i>Definition:</i> The number of times an information exchange takes place over some unit of time.
Timeliness	<i>Definition:</i> The time during which the information exchanged retains its business usefulness to make the exchange meaningful for the parties involved. Note that this is different from the desired response time for the parties involved <i>Example Contents:</i> Seconds, Minutes, Hours, Days
Throughput	<i>Definition:</i> The total number of units that must be exchanged over some unit of time
Privacy/Dissemination Controls	<i>Definition:</i> Indicates that some privacy or dissemination control may be needed for this information exchange because the information is covered by the Privacy Act, contains corporate competitive or financial information, or for some other reason. C/I indicates confidential and contains information that may be proprietary (i.e., commercially sensitive information. C/F indicates confidential and contains financial information (may also contain Privacy Act information). C/P indicates confidential and contains information covered by the Privacy Act. <i>Example Contents:</i> C/F, C/I, C/P
Authentication Required?	<i>Definition:</i> A yes or no indication that the recipient needs to verify the identify of the source of the message to ensure the authenticity of the source and message
Threats -Electronic	Indicates what the threat might be to an electronic information exchange. UA indicates unauthorized access. UM indicates unauthorized modification. L indicates loss or destruction. Umessage indicates unauthorized message or information exchange (i.e., either fraudulent or sent by a party without proper authority)

## 9.6 System Interface Description (SID)

### SID Systems Nodes

Systems Node Name	Attributes
High-Tech Applicant/ Grantee Type Node	<p><i>Description:</i> This generic Hi-Tech Applicant/Grantee node type shows as an example a university or research institute type systems node containing example types of systems that might be used to participate in federal grant activity. System types include those necessary for an administrative system: firewall, e-mail server, data server, office automation, and software application server for financial management applications. Additional software application capability may be required depending on the method selected for communication with the Federal Commons: EDI, XML, or HTML. The administrative systems will typically be behind the firewall. The AOR and AA would typically use these systems to assemble and transmit the grant application and grant financial and progress reports to the Federal Commons and to send and receive all formal e-mails that are direct with the grant-making agency.</p> <p>University or research institute nodes may also contain laboratory systems and/or research department systems that, for universities, may not be behind the firewall. The laboratory or research department systems may be at other locations (i.e., at other nodes) from the administrative systems, although that is not illustrated here.</p>
Low-Tech Applicant/ Grantee Type Node	<p><i>Description:</i> TBD</p>
Federal Commons Web Node	<p><i>Description:</i> Example node configuration containing the minimum types of systems required to support the current As-Planned Federal Commons capabilities. Minimum system types include: firewall, http server, software applications server, registration server, user administration server, e-mail server, and data server. The software application, registration, and user administration servers may be on the same or different platforms. The data server may also be co-resident with one of the above three servers. Typically, the http server is a separate platform for security reasons. Also for security reasons, all other systems can be accessed only by going through the firewall. Web pages and/or web page data may or may not be resident on the http server. This web node might be outsourced to a commercial web hosting facility.</p>
Federal Commons Secondary Node	<p><i>Description:</i> Potentially, the data for the Federal Commons may be spread across multiple sites (i.e., systems nodes). This secondary node shows an additional data server for storing the more privacy sensitive data</p>

	resident at the Federal Commons (e.g., profile and grant application data). This secondary node would also have a firewall. The secondary node might be located at a government facility.
High-Tech Grant Making Agency Type Node	<i>Description:</i> This generic Hi-Tech Grant Making Agency node shows example types of systems that might be used to support internal agency grants administration. The example system types include: firewall, e-mail server, financial applications server, software application server (for XML and EDI processing), office automation platforms, and data server. Grants applications, financial reports, and progress reports would be stored here. Direct e-mail communications between an applicant/grantee and the grant-making agency would be handled here as well as communications with the Federal Commons. A grant-making agency might support several of these types of nodes, one for each administrative center that handles grant administration for the agency. A grant-making agency might also have a separate or outsourced Web node for supporting a grants-related web site where all of its grants solicitations would be posted.
Low-Tech Grant Making Agency Type Node	<i>Description:</i> TBD The minimal system functional capabilities required for such a node are not clear at this time.

## SID Systems

System Name	Other Attributes
Data Server A	<i>Description:</i> Manages static, publicly available data associated with the Federal Commons web pages, such as application form elements, as well as some data for user accounts <i>Functions Performed:</i> Data management
Data Server B	<i>Description:</i> Manages Federal Commons privacy and confidentiality sensitive data, such as professional and organizational profiles and partially developed grant applications <i>Functions Performed:</i> Data Management
Data Server D	<i>Description:</i> Manages Grant Making Agency grants administration data such as grant applications, application status, grant reporting data (including financial and progress reports), and registration information <i>Functions Performed:</i> Data Management
Data Server E	<i>Description:</i> Manages Applicant/Grantee grant application and reporting data <i>Functions Performed:</i> Data Management
E-mail Server A	<i>Description:</i> Handles e-mail communications between Federal Commons and Grant Making Agency; also handles Federal Commons registration e-mail to Applicant/Grantee <i>Functions Performed:</i> Message handling
E-Mail Server D	<i>Description:</i> Handles e-mail communications between Grant Making Agency and Federal Commons or Applicant/Grantee <i>Functions Performed:</i> Message handling
E-Mail Server E	<i>Description:</i> Handles e-mail for direct electronic communications with Grant Making Agency or registration messages from Federal Commons <i>Functions Performed:</i> Message handling
Financial Applications Server D	<i>Description:</i> Supports software applications for financial aspects of grants administration at Grant Making Agency <i>Functions Performed:</i> Financial management
Financial Applications Server E	<i>Description:</i> Supports software applications for financial aspects of grants administration by Applicant/Grantee; grant financial reporting information is maintained by these applications <i>Functions Performed:</i> Financial management

Firewall A	<i>Description:</i> Protects Federal Commons Web Node from intrusion and the data and software at that node from corruption by unauthorized outsiders; allows Virtual Private Network (VPN) penetration; multiple internal configurations of this firewall are possible <i>Functions Performed:</i> Firewall
Firewall B	<i>Description:</i> Protects sensitive data (i.e., privacy and confidentiality sensitive) for the Federal Commons from intrusion and unauthorized access or modification; allows VPN penetration <i>Functions Performed:</i> Firewall
Firewall D	<i>Description:</i> Protects Hi-Tech Grant Making Agency Type Node from intrusion and the data and software at that node from access and corruption by unauthorized outsiders; allows VPN penetration; multiple internal configurations of this firewall might be used <i>Functions Performed:</i> Firewall
Firewall E	<i>Description:</i> Protects Hi-Tech Applicant/Grantee Type Node administrative systems from intrusion and the data and software on those systems from access and corruption by unauthorized outsiders; multiple internal configurations of the firewall may be used <i>Functions Performed:</i> Firewall
http Server A	<i>Description:</i> (a.k.a. Web Server) Supports access to Federal Commons web pages or other software applications available at Federal Commons that use http protocol <i>Functions Performed:</i> HTML processing; http protocol handling
Lab Systems	<i>Description:</i> Support technical aspects of grant fulfillment, e.g., research work <i>Functions Performed:</i> various, depending on type of grant and University or Research Institute
Office Automation Platform D	<i>Description:</i> Desktop applications to support grants administration at Grant Making Agency <i>Functions Performed:</i> Office automation
Office Automation Platform E	<i>Description:</i> Desktop applications to support grants administration by Applicant/Grantee <i>Functions Performed:</i> Office automation
Registration Server A	<i>Description:</i> Supports software applications for registration with Federal Commons, user authentication, and tracking of user registration with grant making agencies. <i>Functions Performed:</i> User registration, authentication, and log on
Research Department Systems	<i>Description:</i> Support software applications for grant development (e.g., graphics systems), project management, and technical progress reporting, including web browsers <i>Functions Performed:</i> Office automation, project management

S/W (Software) Application Server A	<i>Description:</i> Handles queries for grant application status and web forms, XML, and EDI processing and translation; generation of e-mail messages for Grant Making Agency <i>Functions Performed:</i> Query handling; XML and EDI processing; web forms applications; e-mail client
S/W (Software) Application Server D	<i>Description:</i> Handles queries for grant application status and XML and EDI processing and translation <i>Functions Performed:</i> Query handling; XML and EDI processing; web forms applications; e-mail client
User Administration Server A	<i>Description:</i> Supports software applications for user account administration <i>Functions Performed:</i> Accounts management

## SID Links

Link Name	Other Attributes
EDI VPN	<p><i>Description:</i> Virtual Private Network (VPN) is a virtual direct link that supports EDI transmissions between Applicant/Grantee (usually Universities) and Grant Making Agency. This link is provided by an EDI vendor. This virtual link is implemented through standard Internet connections but is logically a direct link, and is usually protected by encryption. This is a two way link.</p> <p><i>Protocols Supported:</i> TCP/IP</p> <p><i>Capacity:</i> TBD - varies depending on technology available at the Applicant/Grantee Type Node, the Grant Making Agency Type Node, and the ISP used by the EDI vendor</p> <p><i>Infrastructure Technology:</i> Wire or fiber; encryption is provided by the EDI vendor</p> <p><i>Endpoint 1 System Name:</i> Firewall E (Hi-Tech Applicant/Grantee Type Node)</p> <p><i>Endpoint 2 System Name:</i> Firewall D (Hi-Tech Grant Making Agency Home Type Node)</p> <p><i>Link Implements Needline:</i> 5 (Direct Applicant/Grantee Communications to Agency), 6 (Direct Agency Communications to Applicant/Grantee)</p>
Internet Connection A	<p><i>Description:</i> ISP provided Internet connection for Federal Commons; supports transmission of e-mail, and html, EDI, and XML documents; may also support CORBA style messages. This is a two-way connection.</p> <p><i>Protocols Supported:</i> TCP/IP (IIOP (CORBA), e-mail, and http ride on top of TCP/IP)</p> <p><i>Capacity:</i> TBD – will vary depending on technology available both at the Federal Commons Web Node and the ISP; requirements are TBD</p> <p><i>Infrastructure Technology:</i> Wire or fiber; encryption requirements TBD</p> <p><i>Fixed Endpoint System Name:</i> Firewall A (Federal Commons Web Node)</p> <p><i>Endpoint of Interest 1 System Name:</i> Firewall E (Applicant/Grantee Type Node)</p> <p><i>Endpoint of Interest 2 System Name:</i> Firewall D (Grant Making Agency Type Node)</p> <p><i>Link Implements Needline:</i> 1 (Materials Submission), 4 (Forwarded Notification), 3 (Materials Receipt), and 2 (Grantee Notification)</p>
Internet Connection D	<p><i>Description:</i> ISP provided Internet connection for a Grant Making Agency. For purposes of grants administration, the primary purpose of this link is to support e-mail with both the Federal Commons and Applicant/Grantee. This link may also support CORBA style messages. This is a two-way connection.</p>

	<p><i>Protocols Supported:</i> TCP/IP (IIOP (CORBA) and e-mail ride on top of TCP/IP)</p> <p><i>Capacity:</i> TBD – varies depending on technology available both at the Grant Making Agency and the ISP; requirements for grants administration traffic are TBD</p> <p><i>Infrastructure Technology:</i> Wire or fiber; encryption requirements TBD</p> <p><i>Fixed Endpoint System Name:</i> Firewall D (Grant Making Agency Type Node)</p> <p><i>Endpoint of Interest 1 System Name:</i> Firewall A (Federal Commons Web Node)</p> <p><i>Endpoint of Interest 2 System Name:</i> Firewall E (Applicant/Grantee Type Node)</p> <p><i>Link Implements Needline:</i> 2 (Materials Receipt), 3 (Grantee Notification), 5 (Direct Applicant/Grantee Communications to Agency), and 6 (Direct Agency Communications to Applicant/Grantees)</p>
Internet Connection E	<p><i>Description:</i> ISP provided Internet connection. For purposes of grants administration, the primary purpose of this link is to support transmission of html, EDI, and XML documents with Federal Commons and to support e-mail with both Federal Commons and Grant Making Agencies. This is a two-way connection.</p> <p><i>Protocols Supported:</i> TCP/IP</p> <p><i>Capacity:</i> TBD – varies depending on technology available both at the Applicant/Grantee and the ISP; requirements for grants administration traffic are TBD</p> <p><i>Infrastructure Technology:</i> Wire or fiber; encryption requirements TBD and may vary depending on the specific Applicant/Grantee</p> <p><i>Fixed Endpoint System Name:</i> Firewall E (Hi-Tech Applicant/Grantee Type Node)</p> <p><i>Endpoint of Interest 1 System Name:</i> Firewall A (Federal Commons)</p> <p><i>Endpoint of Interest 2 System Name:</i> Firewall D (Grant Making Agency Type Node)</p> <p><i>Link Implements Needline:</i> 1 (Materials Submission), 4 (Forwarded Notification), 5 (Direct Applicant/Grantee Communications to Agency), and 6 (Direct Agency Communications to Applicant/Grantee)</p>
VPN A	<p><i>Description:</i> Virtual Private Network (VPN) is a virtual direct link between the Federal Commons Web Node and the (optional) Federal Commons Secondary Node. This virtual link is implemented using standard Internet connections but is logically a direct link and is protected by encryption. This is a two way link.</p> <p><i>Protocols Supported:</i> TCP/IP</p> <p><i>Capacity:</i> TBD - varies depending on technology available at the Federal Commons Web Node, the</p>



	<p>Federal Commons Secondary Node, and the ISP</p> <p><i>Infrastructure Technology:</i> Wire or fiber; encryption is supplied by the VPN provider</p> <p><i>Endpoint 1 System Name:</i> Firewall A (Federal Commons Web Node)</p> <p><i>Endpoint 2 System Name:</i> Firewall B (Federal Commons Secondary Node)</p> <p><i>Link Implements Needline:</i> 1 (Materials Submission) and 2 (Materials Receipt)</p>
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**SID System Functions**

Name	Description
Accounts management	Management of user accounts; includes management of passwords and support for administrative functions such as creating, deleting, and updating user accounts, and monitoring of account usage
Authentication	Verification of user identify and privileges prior to allowing access to system functions
Data management	Management of structured data (i.e., creation, storage, updating, deletion, and administration); includes both file management and database management
EDI processing	Creation, parsing, display, and transmission of EDI documents
E-mail client	User interface for e-mail management (creation, deletion, display, and organization)
Financial management	Includes accounting and financial tracking and reporting functions
Firewall	Intrusion prevention – includes some authentication processing or intrusion detection; may include virus checking
HTML processing	Creation and parsing of HTML documents
http protocol handling	Assembly and disassembly of http packets for Internet transport
Log on	Establishment of user session with system or network; interacts with authentication to establish identity and privileges of user
Message handling	Both in-bound and out-bound message routing as well as message store and forward capabilities
Office Automation	Desktop support for word processing, presentation development, spreadsheets, and web-browser as well as client side support for e-mail
Project management	Includes Work Break-down Structure, planning, scheduling, progress tracking and reporting functions
Query handling	Parsing, formatting, and routing of queries
User registration	Initial contact with potential user and establishment of user identity, credentials, and requirements for system privileges
Web forms applications	Handles display of forms and transmission of provided form contents across the Internet
XML processing	Creation, parsing, and display of XML documents; may include development and management of tags

## 9.7 System Evolution Description (SED)

### SED Capabilities Milestones

Capability	Description and Implementation Date
Account Registration and Administration	<i>Description:</i> Allow organizations and individual users to establish accounts on and identify personnel authorized to conduct business through the Federal Commons <i>Estimated Implementation Date:</i> TBD <i>Release Number:</i> TBD
Application Status	<i>Description:</i> Allow applicants to query the status of grant applications at grant making agencies through the Federal Commons <i>Estimated Implementation Date:</i> TBD <i>Release Number:</i> TBD
Award Notification	<i>Description:</i> Notify a grant recipient of his or her award through the Federal Commons <i>Estimated Implementation Date:</i> TBD <i>Release Number:</i> TBD
Closeout	<i>Description:</i> An agency provides a grantee notice of the close out of a grant through the Federal Commons and the necessary certification forms and other materials the grantee must complete for grant closeout. The grantee can submit the completed materials to the agency through the Federal Commons. <i>Estimated Implementation Date:</i> TBD <i>Release Number:</i> TBD
Grant Application Submission	<i>Description:</i> An applicant can submit his completed application to the grant making agency through the Federal Commons <i>Estimated Implementation Date:</i> TBD <i>Release Number:</i> TBD
Payment Authorization and Notification	<i>Description:</i> Notify grantee that payment authorization has been forwarded to a payment agent and payment should be forthcoming. <i>Estimated Implementation Date:</i> TBD <i>Release Number:</i> TBD
Performance and Financial	<i>Description:</i> Provide the grantee forms and mechanisms by which to report grant progress and

Reporting	financial information. Support submission of this information to grant making agencies through the Federal Commons. <i>Estimated Implementation Date:</i> TBD <i>Release Number:</i> TBD
Profile Administration	<i>Description:</i> Provide the ability to create and update organizational and professional profiles. Supply profiles to agencies upon request. <i>Estimated Implementation Date:</i> TBD <i>Release Number:</i> TBD
Small Business Innovative Research	<i>Description:</i> The services to be provided have not yet been established <i>Estimated Implementation Date:</i> TBD <i>Release Number:</i> TBD
User Authentication	<i>Description:</i> Ensure user accessing the Federal Commons is an authorized user <i>Estimated Implementation Date:</i> TBD <i>Release Number:</i> TBD

Note: Firm descriptions and plans for many of the capabilities described in this table are not available. The descriptions provided are statements of possible capabilities.

## 9.8 Technical Architecture Profile

Entity	Attributes
Standards Profile	<p><i>Name:</i> Federal Grants Pilot Architecture Technical Architecture Profile</p> <p><i>Description:</i> This is the standards profile for the Federal Commons portion of the Federal Grants Pilot Architecture. This profile outlines the standards necessary for connection to and interaction with the Federal Commons.</p> <p><i>Base Profile:</i> This standards profile is not based on any higher level standards profile.</p> <p><i>Applicable Date:</i> TBD</p>
Reference Model	<p><i>Name:</i> Department of Defense Technical Reference Model, Version 1.0, 5 November 1999</p> <p><i>Description:</i> The Technical Architecture Profile is based on a tailored set of the service area and services from the DoD TRM. The service view is used in the Grants Profile, but the interfaces view might be used to organizing the communications standards in the future.</p> <p><i>Source:</i> <a href="http://www-trm.itsi.disa.mil">www-trm.itsi.disa.mil</a></p>
Service Area	<p><i>Name:</i> Support Applications</p> <p><i>Description:</i> Support applications are common applications that can be standardized across individual or multiple-mission areas. The services they provide can be used to develop mission-area specific applications or can be made available to the user. An implementation of a support application may actually merge several services from several different services. [Source: DoD TRM]</p>
Service	<p><i>Name:</i> Web Applications</p> <p><i>Description:</i> Includes COTS applications that support world wide web based e-mail (i.e., e-mail clients) and Internet search and retrieval of remote documents and multi-media. [Grants unique]</p> <p><i>Status:</i> Current</p>
Standard	<p><i>Name:</i> Internet Explorer</p> <p><i>Description:</i> COTS Web Browser (product standard); user needs only one of Internet Explorer or Netscape</p> <p><i>Options &amp; Parameters:</i> Version 4.X or better</p> <p><i>Type:</i> COTS Product</p> <p><i>Status:</i></p>
Standard	<p><i>Name:</i> Netscape</p>

Entity	Attributes
	<p><i>Description:</i> COTS Web Browser; user needs only one of Internet Explorer or Netscape</p> <p><i>Options &amp; Parameters:</i> Version 3.X or better</p> <p><i>Type:</i> COTS Product</p> <p><i>Status:</i></p>
Service Area	<p><i>Name:</i> Data Management</p> <p><i>Description:</i> Includes application platform services that provide for management of data independent of the processes that create or use it. These services support persistent data and are shared among many processes. [DoD TRM]</p>
Service	<p><i>Name:</i> Business Data Standards</p> <p><i>Description:</i> Provides standard definitions for shared, common business data [Grants unique]</p> <p><i>Status:</i> Current</p>
Data Element Standard	<p><i>Name:</i> Data Universal Numbering System (DUNS)</p> <p><i>Description:</i> Unique number for identifying contractors (applicant/grantees) in the Federal Procurement Data System (FPDS). See FAR parts 4 and PAR 52.212-1, Instructions to Offerors Commercial Items.</p> <p><i>Reference:</i> Provided by Dun and Bradstreet for offerors within the United States (1-800-33-0505; <a href="http://www.dnb.com">http://www.dnb.com</a>)</p> <p><i>Type:</i> Industry</p> <p><i>Version:</i> TBD</p>
Data Element Standard	<p><i>Name:</i> ZIP Code Directory</p> <p><i>Description:</i> Standard zip code for identifying postal zones in the United States</p> <p><i>Reference:</i> U.S. Postal Service</p> <p><i>Type:</i> Government</p> <p><i>Version:</i> Most Current</p>
Data Element Standard	<p><i>Name:</i> Congressional District Identifier</p> <p><i>Description:</i> Standard codes for identifying congressional districts. Referenced web-site provides a mechanism for determining congressional districts based on zip codes.</p> <p><i>Reference:</i> <a href="http://www.house.gov/zip/ZIP2Rep.html">http://www.house.gov/zip/ZIP2Rep.html</a></p> <p><i>Type:</i> Government</p> <p><i>Version:</i> N/A</p>

Entity	Attributes
Data Element Standard	<p><i>Name:</i> Codes for the Representation of Names of Countries and Their Subdivisions</p> <p><i>Description:</i> See <a href="http://www.din.de/gremien/nas/nadb/iso3166ma/index.html">http://www.din.de/gremien/nas/nadb/iso3166ma/index.html</a></p> <p><i>Reference:</i> ISO 3166: ISO 3166-1 (1 October 1997) and ISO 3166-2 (15 December 1998)</p> <p><i>Type:</i> De jure</p> <p><i>Version:</i> See above referenced dates</p>
Data Element Standard	<p><i>Name:</i> U.S. State Codes and Territory Codes (?)</p> <p><i>Description:</i> Standard abbreviations for U.S. States and Territories</p> <p><i>Reference:</i> <a href="http://aesdirect.gove/support/reference.html">http://aesdirect.gove/support/reference.html</a></p> <p><i>Type:</i> Government</p> <p><i>Version:</i> Current (site updated weekly)</p>
Data Element Standard	<p><i>Name:</i> Catalogue for Federal Domestic Assistance Program</p> <p><i>Description:</i> Provides standard code tracing type of assistance to enabling legislation</p> <p><i>Reference:</i> <a href="http://www.cfda.gov">http://www.cfda.gov</a></p> <p><i>Type:</i> Government</p> <p><i>Version:</i> Most current</p>
Data Element Standard	<p><i>Name:</i> Electronic Grants Data Elements</p> <p><i>Description:</i> Definitions for common superset of data elements needed for grants applications</p> <p><i>Reference:</i> <a href="http://www.financenet.gov/financenet/fed/iaegc/gdd.htm">www.financenet.gov/financenet/fed/iaegc/gdd.htm</a></p> <p><i>Type:</i> Federal Grants Administration domain specific</p> <p><i>Version:</i> July 5, 2000</p>
Service Area	<p><i>Name:</i> Data Interchange</p> <p><i>Description:</i> Data interchange services provide specialized support for the interchange of information between applications and to/from the external environment. These services are designed to handle data interchange between applications on the same platform and applications on different platforms. [DoD TRM]</p>
Service	<p><i>Name:</i> Document Interchange</p> <p><i>Description:</i> Document interchange services are supported by specifications for encoding the data (e.g., text, pictures, numbers, and special characters) and both the logical and visual structures of electronic documents. [DoD TRM]</p> <p><i>Status:</i> Current</p>

Entity	Attributes
Standard	<p><i>Name:</i> eXtensible Markup Language (XML) [XML 1.0: World Wide Web Consortium (W3C) Recommendation, 10 February 1998, Rec-xml-19980210]</p> <p><i>Description:</i> XML is based on the Standard Generalized Markup Language (SGML). XML allows domain specific markup languages and customized, application-specific markup languages to be defined through the use of application profiles using application-specific tagged data items.</p> <p><i>Options &amp; Parameters:</i> DTDs for Electronic Grants</p> <p><i>Type:</i> Industry consortium</p> <p><i>Status:</i> Current</p>
Standard	<p><i>Name:</i> Hypertext Markup Language (HTML) [HTML 4.0 Specification, W3C Recommendation revised 24-Apr-1998, Rec-html40-19980424]</p> <p><i>Description:</i> Standard for hyper-text formatted and navigationally linked documents. Allows interchange of these documents via the world wide web.</p> <p><i>Options &amp; Parameters:</i> N/A</p> <p><i>Type:</i> Industry consortium</p> <p><i>Status:</i> Current</p>
Standard	<p><i>Name:</i> Electronic Data Interchange (EDI) [American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12]</p> <p><i>Description:</i> X12 provides standard syntax (i.e., data elements and structured business documents) for more than 250 types of business transactions.</p> <p><i>Options &amp; Parameters:</i> Implementation Conventions approved for Grants Administration based on X12 transactions: 840 (Solicitation), 194 (Grant or Assistance Application and Progress Reporting), 850 (Award), 855 (Award Acknowledgment), 860 (Award Modification), 865 (Award Modification Acknowledgment), 810 (Payment Request), 820 (Remittance and Electronic Funds Transfer), 870 (Invention Report), 997 (Functional Acknowledgment)</p> <p><i>Type:</i> De Jure</p> <p><i>Status:</i> Current</p>
Service Area	<p><i>Name:</i> Communications</p> <p><i>Description:</i> Communications services are provided to support distributed applications requiring data access and applications interoperability in a networked environment. [DoD TRM]</p>
Service	<p><i>Name:</i> World Wide Web Services</p>



Entity	Attributes
	<i>Description:</i> Communications services specific to the world wide web. [DoD TRM] <i>Status:</i> Current
Standard	<i>Name:</i> Hypertext Transfer Protocol (HTTP) [Internet Engineering Task Force (IETF) RFC-2616Hypertext Transfer Protocol – HTTP/1.1, June 1999] <i>Description:</i> This protocol supports search and retrieval with the world wide web. <i>Options &amp; Parameters:</i> <i>Type:</i> Industry consortium <i>Status:</i> Current
Service	<i>Name:</i> Electronic Mail <i>Description:</i> The electronic mail services provide server-to-server communications capability for sending electronic messages. [DoD TRM] <i>Status:</i> Current
Standard	<i>Name:</i> Simple Mail Transfer Protocol (SMTP) [IETF Standard 10/RFC-821/RFC-1869/RFC-1870 Simple Mail Transfer Protocol (SMTP) Service Extensions, November 1995] <i>Description:</i> SMTP supports transmission of electronic messages between e-mail servers. <i>Options &amp; Parameters:</i> TBD <i>Type:</i> Industry consortium <i>Status:</i> Current
Standard	<i>Name:</i> Standard for the Format of ARPA Internet Text Messages [IETF Standard 11/RFC-822/RFC-1049 Standard for the Format of ARPA Internet Text Messages, 13 August 1982] <i>Description:</i> This standard defines the format for electronic text messages. <i>Options &amp; Parameters:</i> TBD <i>Type:</i> Industry consortium <i>Status:</i> Current
Standard	<i>Name:</i> Multipurpose Internet Mail Extensions (MIME) [IETF RFCs 2045-2049 Multipurpose Internet Mail Extensions (MIME), November 1996] <i>Description:</i> MIME supports attachments to electronic text messages. <i>Options &amp; Parameters:</i> TBD <i>Type:</i> Industry consortium <i>Status:</i> Current

Entity	Attributes
Service	<p><i>Name:</i> Transport Services</p> <p><i>Description:</i> The transport services provide host-to-host communications capability for application support services. [DoD TRM]</p> <p><i>Status:</i> Current</p>
Standard	<p><i>Name:</i> Transmission Control Protocol (TCP) [IETF Standard 7/RFC-793 Transmission Control Protocol, September 1981]</p> <p><i>Description:</i> TCP provides reliable connection-oriented transport services</p> <p><i>Options &amp; Parameters:</i> TBD</p> <p><i>Type:</i> Industry consortium</p> <p><i>Status:</i> Current</p>
Standard	<p><i>Name:</i> Internet Protocol (IP) [IETF Standard 6/RFC-791/RFC-950/RFC-919/RFC-922/RFC-792/RFC-1112 Internet Protocol, September 1981]</p> <p><i>Description:</i> IP provides basic connectionless datagram service. IP includes Internet Control Message Protocol (ICMP) and Internet Group Management Protocol (IGMP). ICMP is used to provide error reporting, flow control, and route redirection. IGMP provides multicast extensions for hosts to report their group membership to multicast routers.</p> <p><i>Options &amp; Parameters:</i> TBD</p> <p><i>Type:</i> Industry consortium</p> <p><i>Status:</i> Current</p>
Service Area	<p><i>Name:</i> Distributed Computing</p> <p><i>Description:</i> Distributed computing services provide specialized support for applications that may be physically or logically dispersed among computer systems in a network yet wish to maintain a cooperative processing environment. . These are cross-cutting services. [DoD TRM]</p>
Service	<p><i>Name:</i> Object Services</p> <p><i>Description:</i> Object services support definition, instantiation, and interaction of objects in a distributed environment, and include services that handle operating system bindings, message transport and delivery, and data persistence. [DoD TRM]</p> <p><i>Status:</i> Future</p>
Standard	<p><i>Name:</i> Common Object Request Broker Architecture (CORBA) Version 2.3 [Object Management Group (OMG) document formal/98-12-01, June 1999]</p>

Entity	Attributes
	<i>Description:</i> <i>Options &amp; Parameters:</i> Need to include TBD services from CORBA services: Common Object Services Specification [OMG document formal/97-12-11] <i>Type:</i> Industry Consortium <i>Status:</i> Proposed – used in pilots
Service Area	<i>Name:</i> Security <i>Description:</i> These services assist in protecting information and computer platform resources. These are cross-cutting services. [DoD TRM]
Service	<i>Name:</i> Authentication <i>Description:</i> These services support verification of user identify and privileges and tracing of security relevant events to individual users. [DoD TRM] <i>Status:</i> Current
Standard	<i>Name:</i> FIPS-PUB 112 Password Usage, 30 May 1985 <i>Description:</i> <i>Options &amp; Parameters:</i> <i>Type:</i> Government <i>Status:</i> Current
Service	<i>Name:</i> Security Algorithms <i>Description:</i> These services provide standards for identified types of cryptographic algorithms that allow interoperability of transport protocols. [DoD TRM] <i>Status:</i> Future
Standard	<i>Name:</i> FIPS-PUB 186-1 Digital Signature Standard (DSS) Digital Signature Algorithm (DSA), December 1998 <i>Description:</i> Specifies a way to generate and verify a digital signature. <i>Options &amp; Parameters:</i> <i>Type:</i> Government <i>Status:</i> Proposed
Service	<i>Name:</i> Web Security <i>Description:</i> These services provide communications privacy over the Internet. They allow

Entity	Attributes
	<p>client/server applications to communicate in a way designed to prevent eavesdropping, tampering, or message forgery. [DoD TRM]</p> <p><i>Status:</i> Current</p>
Standard	<p><i>Name:</i> Secure Sockets Layer (SSL) Protocol Version 3.0, 18 November 1996 [Netscape]</p> <p><i>Description:</i> Allows client/server applications to communicate in a way designed to prevent eavesdropping, tampering, or message forgery</p> <p><i>Options &amp; Parameters:</i> TBD</p> <p><i>Type:</i> De facto industry standard</p> <p><i>Status:</i> Current</p>
Standard	<p><i>Name:</i> Transport Layer Security (TLS) [IETF- RFC 2246 The Transport Layer Security (TLS) Protocol Version1.0, January 1999]</p> <p><i>Description:</i> Allows client/server applications to communicate in a way designed to prevent eavesdropping, tampering, or message forgery. Not yet available in web browsers. May not be compatible with SSL.</p> <p><i>Options &amp; Parameters:</i> TBD</p> <p><i>Type:</i> Industry consortium</p> <p><i>Status:</i> Proposed</p>
Standard	<p><i>Name:</i> Secure SMTP [IETF-RFC 2467 SMTP Service Extension for Secure SMTP over TLS, January 1999]</p> <p><i>Description:</i> Allows e-mail server-to-server communications with privacy supported by TLS. Implementations not yet available.</p> <p><i>Options &amp; Parameters:</i> TBD</p> <p><i>Type:</i> Industry consortium</p> <p><i>Status:</i> Proposed</p>

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